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MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

September 3, 1976

Comments Concerning

Draft Environmental Impact Statement for Sun Prairie Village - a proposed subdivision in Cascade County

A draft environmental impact statement (EIS) was proposed and circulated by the State Department of Health and Environmental Sciences. A copy of the comments and department response is enclosed.

Based on the substance of the comments, the department waives the requirement for a first EIS pursuant to The Uniform Rules implementing the Montana Environmental Policy Act, 16-2.2(2)-P2040 (Rule V), section (2)(a) and (b).

The department anticipates approval of the proposed subdivision when the approval conditions listed on page 30 and 31 are fulfilled.

Sincerely,

Ed W Casne

Edward W. Casne, Chief
Subdivision Bureau
Environmental Sciences Division
Department of Health and
Environmental Sciences

DCA MONTANA DEPARTMENT OF COMMUNITY AFFAIRS
Capitol Station, Helena, Montana 59601

Thomas L. Judge
Governor

August 20, 1976

Edward W. Casne, Chief
Subdivision Bureau
Environmental Sciences Division
Board of Health
Helena, Montana 59601

We have reviewed the draft environmental statement for the proposed Sun Prairie Village mobile home subdivision in Cascade County. The statement appears to thoroughly discuss the potential impact of this major development, and in particular those aspects of the development which will have an impact upon local government and the community, such as tax revenue, costs of public services, transportation needs and land use.

However, the statement is not clear in regard to an important question relating to both the water and sewer systems. According to the statement, the wells are located three-fourths of a mile southeast of the subdivision near the Sun River. Is the well site located on land owned by the developer and will the home owners' association receive title to this property? If it is not owned by the developer, will a permanent easement be provided by the property owner to permit maintenance of the wells and associated water lines?

The spray irrigation system to be installed initially will require forty acres of land. Will this forty acres be included within the subdivision itself and if not, will the homeowners' association be provided with title to the separate property to be used for irrigation? The same questions also apply to the additional forty acres which may be needed in the event that maximum sewage flow occurs. The statement says that the department must be assured that sufficient land is available should this happen.

How does the department propose to "assure that sufficient land is available?" Any arrangement to provide this eighty acre area must, of course, be permanent. Permanent access could only be effectively assured by conveying title to the area to the home owners' association, or by providing a perpetual easement for the disposal of treated waste water.

We believe that the final impact should address these questions in detail.

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https://archive.org/details/environmentalim1978mont_0

Thank you for the opportunity to comment.

Sincerely,

David Cole

David C. Cole
Planner
DCA/Division of Planning

DCC/nh

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

A. C. Knight, M.D.
~~John S. Anderson M.D.
DIRECTOR~~
Acting Director

September 3, 1976

Mr. David C. Cole, Planner
DCA/Division of Planning
Department of Community
Affairs
Capitol Station
Helena, Montana 59601

Dear Mr. Cole:

Thank you for your response to the draft EIS concerning the proposed Sun Prairie Village Subdivision.

A copy of the easements for the water supply and sewage disposal systems are on file with the Subdivision Bureau. We have received verification from our Legal Division that these easements will provide the necessary safeguards to assure adequate land availability and access.

I trust that this letter answers your questions, if not feel free to contact this office.

Sincerely,

Edward W. Casne, Chief
Subdivision Bureau
Environmental Sciences
Division

EWC/js

July 27, 1976

Edward W. Casne, Chief
Subdivision Bureau

Sun Prairie Village
Cascade County, Mont.

Dear Sir:

After reading the E.I.S. on the above proposed developement, I find many of the statements vague, inconclusive, & contradictory.

1- Para. 2 " 29 multi family residential lots". To determine the requirements for water,sewer, & traffic, one must know how many people are going to live in the devlopement. Just how ' multi' are these lots?? Two trailers, or a 100 unit high-rise??

Para.3 " 26 acres for parks (more then one).
On page 12 it implys one 26 acre park. It does state as fact the park will be established and maintained by the homeowners. On page 14 it further states the park will be near the sewer lagoon, in the black alkaline area.

Lets face a few more facts that aren't mentioned. Transient (Boeing) trailer dwellers are not about to spend their money on a park they might use for a year or two. In that length of time the grass will hardly have time to get well established. The permanent dwellers are not to likly to foot the bill alone, for all the things needed to establish and maintain a park. Number one for a big expense, is who would put in the irrigation?? Then we have the fact that it is in a black alkaline area, where nothing will grow, and next to the sewer lagoon, where the smell is anything but pleasent. In short, no park.

3-Para.5 " storm water drainage- will percolate most of the time" Under the present conditions, I might agree,BUT, there is going to be 50 acres of asphalt surfaced roads, which will have 100% run-off. 505 trailers, depending on size, will cover another 8 to 10 acres, with 100% run-off. 40 and possibly 80 acres will be irrigated to the maximum from the sewer lagoon. How much run-off will that have? One thing we know- none of that run-off is there now.

- Para. 2 Armstong's pump test data; 364,000 Gals. in 23.33 hrs. The 5 wells are capable of putting out over one million Gals. in 24 hours. With 500 or more lawns, and a 26 acre park, should it ever be established, you can bet they will need that much. Lets be realistic. Pumping one third of capacity for 24 hours, couldn't possibly have any effect on outlying wells.
- Para.3 " Steve White's conclusion", " The draw-down effect to surrounding wells is minimal, due to the proximity of the Sun River." That statement is only taking up space in the report- it means nothing. An above ground river has nothing to do with an underground well. He then recommends that notice procedures be waived on this application. I DO NOT. I recommend the notices not be waived, untill such time as the maximum output of the wells in question, has been maintained, for a sufficient length of time (a year) to show it will not effect outlying wells, giving the outlying wells priority, should the water table draw down.
- Last & 1st Para. ' Giving elevations of the top of the dike above mean sea level, and stateing; " This means the dikes are well above the 100 year flood." That certainly is mishandling the truth. The dikes are not above the flood plain, and an addition on page 31, letter D, it should be stated how the dikes are to be protected, with concrete, large rocks, or whatever is adequate.

While we are on the subject of sewer lagoon dikes, I have another question. What happens to the flood water being dispalced by almost 7 acres of lagoon dikes?? Whare will that water go during the next flood?? North of the dikes, into the trailer park? South of them, into Sun Prairie Estates? Will it back up some of it?? In 1975 the county road was under water about 10 inches deep for a couple hundred yards. That lagoon is right in the path of the flowing flood water, and it's going to have an effect on it.

4- Sewage flow and disposal;

5 To obtain the figures given for sewage flow, some number of persons, times 100 gals. per day per capita, had to be used. My calculator shows this number to be 1787 persons. On page 11, paragraph 2, it states what type people are anticipated in the trailer park. Elsewhere it states 505 single family lots, and the 29 multi family lots. Using the figures given on page 11 of the E.I.S. for the family size, we get 1767 persons on the 505 single family lots. You mean only 20 persons live on the 29 multi family lots??

I know that untill the the number of persons anticipated for the multi-family lots is an established fact, all we can do is guess at that number, but why guess so low??

DISPOSAL: I'll concur, the soil can handle 5 additional inches of moisture, bringing the maximum to 27 inches. In that case, you will also have to concur that some years it rains more than other years. During those years, it will not take the 5 additional inches, and may not even take the standard 22 inches. What then?? 100% runoff into the Sun River?? On that short notice, more land and a larger irrigation system cannot be put into use.

As for the Berkley B-3 pump, with the 6 inch suction and discharge, it sounds very impressive, but; a B-3 pump has a 4 inch intake, and 3 inch discharge, and you can put 10 inch connections on each end, and still have only a 3 inch pump.

10- Para 8 & 9 " type of persons living in Sun Prairie Estates"

~~11~~ I guess you could call me a ' professional'. Truck driving is classed as a profession, but I sure as hell am not classed with 'professinal and white collar managerial' as stated in the E.I.S. and don't know of anyone out here who is.

I drive for Garrett, and two others drive for the B.N. Three carpenters, a 1-man construction(gravel and grade), Wards employee, retired osteopath, couple of insurance salesman, a full-time Guardsman, a smelterman, and a teacher, make up about half the number of persons living here. The other half fall in similar groups.Does that sound like a group of rich people?? Weare for the most part, a group of working stiffs, fed up with city living, struggling like hell to keep what we have, and who-ever wrote that statement about us, can take his presumptions and stick them in his ear.

11- Para. 8. Sun Prairie Estates didn't try and block the developement. The petition our three spokesman presented at the public meeting, held for just that reason, had 100% of the residents signatures on it, along with a few facts like people living over a high pressure gas line, and under high voltage wires, the sewer lagoon in the 10 year flood plain, and the smell created by it, the traffic congestion, the crouded conditions of a trailer park, which would spill the kids and dogs over into Sun Praitie Estates, just to mention a few of the things. I guess that explains why we thought we had been ' steamrollered'. Nobody even knew we were there.

12-Para 3-Kids playing in the narrow streets- just what we really need. There is no mention of small motorcycles, or dogs, an you can bet there will be planty of both, with little control over the former, and noaeover the latter. What happens when the dogs pack up and harass the livestock?? With around 30 families, at the time, we have had two such incidents out here, about a year ago. After a dog or two ' disappeared' and some nasty words flew back and forth, things calmed down and there has beea no trouble since, but that was with 30 families, and now we are talking 500/

13- From this page, I gather my taxes are going to go up because of the developement, and the rest of the county gets to spend 1 a half million more for education alone, plus all the fire an police protection. Then, if the trailers are set up right, the owners pay much less in taxes, and the county gets to pick up what the trailer owners save. The whole project costs the County money which in turn costs us, so a developer can make some money. somehow that doesn't grab me as quite fair.

14- para 4 for a contradiction, where the developer claims the land is marginal farmland, and the A.S.C.S. office rates it average.

Para. 7- This I mentioned earlier, about the sewer lagoon an the park, being located in the high alkaline area.

17- Traffic conditions.

18 With the A.D.T. on the Frontage road at 650 now, and the anticipated A.D.T. from the Developement between 3700 an 5300, you better believe we will need left turn lanes at both entrances on the frontage road, and they should be at least a half mile long, and they should be funded 100% by the developer, since it's his money making project that is causing the need for them.

It's also suggested the existing county road be built perpendicular to the frontage road, and I would have to agree with that, whether or not the trailer park is built.

9- Para 8. Here we have another ' contradiction'. Elsewhere it is mentioned there will be from 1 to 2 children per dwelling, on the single family lots. Now in Paragraph 8 it says a high ratio of children per occupancy is expected.

0- The need for a trailer park- People shifting around.

1 The Contryside Village trailer court on the north edge of Great Falls has now been approved, and should take care of anyone on a waiting list, and any influx of Boeing personell, so we really don't need another one.

As for the people in trailer courts in Great Falls moving out to this one, I'd like to know why?? With the price of gasoline going higher all the time, they can't afford to drive into town to go to work. I'm keeping in mind that these people won't be as financially well-to-do as we here in S.P.Estates. That trailer park will be just as crouded as any in town, so they will not have the things we moved out here for, namely room. With 4 lots on an acre, compared to one on 10 acres, there just is no comparison.

3- Energy demands.

Montana Power just had a big rate increase, in part, to encourage conservation, because they are in short supply. Now they have all the energy needed to supply the developement, and everyone knows trailers aren't noted for their quality insulation and economy of heating and cooling.

24 Zoning;

28 Just exactly what is going on here, is difficult to say. One says they can, one says they can't- but we do know they did waive the zoning recommendation. On March 12,1976, the developer was informed, that according to law he form a zoning district before any lots are sold, and as we know, he did not form this district, but he ran an ad in the Great Falls Tribune from March 19, 1976 to March 26th, 1976, offering lots for sale in the proposed developement, and ran a similar ad again in April of 1976. The sewer lagoon is well along it's way to completion, an there is a group of materials of some kind over there, and has been for some time, and yet nothing has been appoved. Actions of this type seem quite presumptuous and high handed to me.

31 'Condition (B)' Delete the ' homeowners Ass'n." and put it up to the developer to maintain and operate the spray irrigation system. What if the homeowners do not form an Ass'n.?

" condition (D) '

Should specify how the dikes are to be protected from flowing flood water- Concrete, large rocks, whatever is adequate to keep the dikes from washing away.

Gentleman, you asked for comments, and there you have them. I tried to keep it short, but believe me, I wanted to say ten times as much as I did. True, my views are biased. I like things as they are now, with the nearest neighbor two tenths of a mile away. I know that can't last, but it's nice as long as it does. When all the lots are filled, it won't be as nice as it is now, but it's still roomier than in town, something the trailer park dwellers won't have, but will take away from us.

With 2000 people in the area, there will be no more, not locking things up tight, at night, or by day, for that matter. Everything is going to change, and none of the changes will be for the better, except for the developer, he stands to make a million.

Thank you.

Yours truly,

Duane Schwecke
Rt. 1 West- Box 195
Great Falls, Mont. 59401

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

A. C. Knight, M.D.
~~John S. Anderson M.D. DIRECTOR~~
Acting Director

September 3, 1976

Mr. Duane Schwecke
Route 1 West, Box 195
Great Falls, Montana 59401

Dear Mr. Schwecke:

We appreciate your meticulous review of the Sun Prairie Village environmental impact statement (EIS). Such a review gives us a better insight concerning portions of the EIS which might be in error or unclear.

In response to your comments, we thought it would be best to discuss our analysis of the EIS in the same chronological sequence you used. Thus, we'll begin with:

Page 1 - Paragraph 2: Multi-family residential lots are restricted to two-family dwellings according to the restrictive covenants. The covenants mention "duplex dwellings containing only one story," with the word building used throughout the section. In another part of the covenants it says, "In no event shall more than one mobile home be permitted to be used on any lot, even where two-family or duplex dwellings or greater density of population may be permitted."

Paragraph 3: The covenants give the homeowners association the authority to levy fees to be used ". . . exclusively to promote the recreation, health, safety and welfare of the residents. . ." Thus there will be money available to build and maintain parks.

In terms of number of parks, there are three, and yes, you read correctly, one is next to the sewage lagoon in the black alkaline area. From what I remember of the area, there is a grass cover, but the alkaline apparently prevents the growing of cash grain crops. Possibly the location isn't ideal--next to the lagoon--but we can't control questions of design. The county planning board normally discusses such questions, and I don't know if it considered the matter.

Page 2 - Paragraph 5: You have a good point, and that's why we attached item 3(a), page 30, to the list of conditions for approving the development.

Page 3 - Paragraphs 2 and 3: (Refer to Appendix A and B)

Page 3 - Last Paragraph, Page 4 - First Paragraph: (Refer to Appendix B, C and D)

Pages 4 & 5: (Refer to Appendix B and C)

Page 10 - Paragraphs 8 and 9: We're sure you can appreciate the fact that we, like people in most jobs, have certain time and money constraints.

We would have liked to have been able to talk with each property owner in the area, but couldn't. It is difficult to describe the social/cultural make-up of any community, but we think we did a pretty good job considering our resources. Concerning the identification of the three groups, we feel it is pretty close, and the fact that persons might not be "white collar managerial and professional . . ." types doesn't eliminate the fact that people living in Sun Prairie Estates are enjoying the best of two worlds--working in the city, living in the country. Plus I don't think living in the development necessarily implies great wealth, but it does imply that families have enough money to buy tracts of land, build homes and commute back and forth to Great Falls.

Page 11 - Paragraph 8: We appreciate the situation. Sometimes making one's position known is difficult.

Page 12 - Paragraph 3: The covenants say no pets shall be allowed to run at large, but the covenants are only as good as the people who control them. If there are problems, you do have two recourses, the sheriff's office and the county commissioners.

Page 13: This is something your county commissioners were aware of when they approved the preliminary plat. It is their responsibility to consider such situations and if the development doesn't increase taxes, they can take credit for the success, but if it increases taxes they must take their chances at the polls.

Page 14: One reason we check all information is to see if there are contradictions. If there are, we include both contentions and let the reader judge who he feels is most credible.

Page 17 and 18: Driving for Garrett I'm sure you can appreciate the section devoted to transporation safety. There are some problems the county, the State Department of Highways and the developer should try to iron out before an accident occurs.

Page 19 - Paragraph 8: The figures of 1-2 children per dwelling would be a high ratio of children if each family living in Sun Prairie Village had children. However, undoubtedly families will range from retired couples to persons with children to young couples without children. The question of children is an educated guess at best.

Page 23: Again, the reason energy was discussed was that it could be a problem.

Pages 24-28: If the actions ". . . seem quite presumptuous and high handed . . ." to you, you should go to the source of the controversy, your county commissioners. They are the ones who control such matters, and as you have read, are the ones who made the decisions.

Page 31: (Refer to Appendix D)

Again, thank you for your comments. We have tried to answer your questions in a straight, forward manner and hope we have clarified rather than muddled parts of the EIS. If you have more questions call or write.

Sincerely,

Edward W. Casne, Chief
Subdivision Bureau
Environmental Sciences
Division

EWC/js

cc: Tom Ellerhoff
Al Keppner

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

THOMAS L. JUDGE, GOVERNOR
GARY WICKS, DIRECTOR

R RESOURCES
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449-3634
32 SOUTH EWING
NATURAL RESOURCES BUILDING
HELENA, MONTANA 59601

August 20, 1976

Mr. Edward Casne, Chief
Subdivision Bureau
Environmental Planning Division
Department of Health and Environmental Sciences
Helena, MT 59601

Dear Mr. Casne:

Enclosed is a response written by Tom Patton, Water Rights Bureau Geologist familiar with this appropriation, to comments directed to your Draft Environmental Impact Statement by Mr. Duane Schweke. We are specifically addressing the comments on page 2 of Mr. Schweke's letter concerning the hydrologic operation of the Sun Prairie Village wells.

If you have any questions concerning the response, please contact us.

Sincerely,

Laurence Siroky
Laurence Siroky, Chief
Water Rights Bureau

TP/cf
Enclosure

[illegible]
AUG 23 1976
MONTANA DEPT. OF HEALTH
[illegible]
SUBDIVISION BUREAU

Menco, Inc.
1300 Marshall Lane
Helena, Mt. 59601

August 13, 1976

Edward W. Casne
ivision Bureau
ironmental Sciences Division
ena, Mt. 59601

r Ed:

I will reply to the letter of Mr. Duane Schweke dated July 27, 1976

e 3 Par(a) 2 Armstrong's Pump Test Data

The water system of Sun Prairie Village was designed for 200 gallons of water per day per person. It has been found that this amount of water provides ample water for a community of this size. This amount of water per person amounts to 336,000 gallons per day not the 1 million gallons referred to by Mr. Schweke.

es 3 & 4 last & first Par(a)

The entire sewage lagoon is out of the 100 year flood area. This has shown by the drawing furnished by the Board of Natural Resoures. The elevations directly South of the sewage lagoon are some 4' lower than the base of the dikes. Therefore any flooding to occur would be the the South of the lagoon. There will be no flood water displaced by the lagoon because the lagoon is not in the flood plain. That lagoon is not right in the path of of the flowing flood water and it is not going to have an effect on it.

for the Berkeley B-3 Pump

It is quite commonplace for designers to use a pump with a 4" suction and a 3" discharge and to provide for a 6" suction line and 6" discharge line. By increasing the size of these two lines the cross sections area is increased, the velocity is reduced, the friction loss is reduced, therefore the system is more efficient. That is why we use a 6" suction line and a 6" discharge line. If we used 10" connections on each end of the pump, as mentioned by Mr. Schweke, it would again add efficiency to the system. However we did not believe that that added efficiency was warranted because of the cost benefit ratio.

Ed, I have tried to be objective in this reply. If you have any other questions out Mr. Schweke's letter please call on me.

Yours truly,

Ralph L. Menasco
Vice-President

Response to Duane Schweke's comments concerning the hydrologic operation of wells owned by Sun Prairie Village.

The quotes on Page 3 of the Montana Department of Health and Environmental Sciences Draft Environmental Impact Statement attributed to Steve White were taken from the summary of his report, Hydrologic Report and Summary of Application 6853-g41K. The backup data on which this summary was based was not included, which may have confused the issue somewhat. Mr. Schweke's comments can be broken down into three areas; surface water and ground water connections; the predicted adverse effect caused by the wells; and the recommendation for waiver of notice procedures.

Connection between "above ground river" and "underground well"

Such connections do exist and are very common. Riverbed aquifer systems are almost always in close connection with flowing streams. In the Sun River valley, sand and gravels are found below 180± feet of silt and clay deposited by Glacial Lake Great Falls and above the bedrock. The bedrock which underlies the alluvium according to the Geologic Map of Montana of 1955 is the Colorado Shale, and is not normally considered to be an aquifer. This formation would not supply any large amounts of water to the gravel. The overlying silts and clays, while they are probably water saturated, are too impermeable to transmit large amounts of water. The most logical explanation then, is that the gravels are connected in some manner to the river. Further documentation that such conditions can and do exist is found in the following textbooks and reports.

Johnson Well Manual: Johnson Division, Universal Oil Products Company, 1972.

Ground Water Resource Evaluation: by William C. Walton, McGraw-Hill Book Company, 1970.

Hydrogeology: by Stanley N. Davis, John Wiley & Sons, Inc. 1966.

Computation of Rate and Volume of Stream Depletion by Wells: C.T. Jenkins, Chapter D-1, Book 4, Hydrologic Analyses and Interpretation, U.S. Geological Survey, 1970.

Further supporting this relationship is the time versus drawdown data developed by the pump test. This data indicates that drawdown is being lessened to some extent by vertical leakage, and to a large extent by recharge induced from the river. In the pumping test, water levels stabilized at approximately 700 minutes, and held constant for the duration of the test to approximately 1400 minutes. It seems most reasonable that the river is in fact providing the recharge to compensate for the pumping.

Steve White's Predicted Adverse Effect Caused by the Sun Prairie Village Wells

The pump test described above serves not only to determine actual drawdowns caused by a certain rate of pumping, but can be used to predict

drawdowns caused by different pumping rates. One method used of analyzing time-drawdown data is by using the Theis equations as modified by Jacob. These equations develop coefficients which describe the water-yielding characteristics of the aquifer. Using the coefficients, Steve White estimated the adverse effect of pumping 750 gallons per minute (1,080,000 gallons per day) for 168 days continuously, appropriating 550 acre-feet. This volume is the total annual appropriation allowed by the water right. While this may not be the actual pumping pattern used, it places a much stronger stress on the aquifer than allowing the same amount of water to be pumped in 365 days. Taking this extreme case, Steve White calculated that drawdown in adjacent areas after pumping 750 gallons per minute (1,080,000 gallons per day) for 168 days continuously would approximate:

Distance in feet from The Sun Prairie Village Wells	Drawdown in Feet
1550	0.2
1100	1.0
600	2.0
350	3.0

Waiver of Notice Procedures Recommendation

Based on his findings, Water Rights Bureau records of neighboring wells, and verbal notification (verified in writing April 15, 1976) that the Sun Prairie County Water District felt that their water supply would not be affected, Steve White recommended that notice procedures pursuant to Section 89-881, R.C.M. 1947, with respect to water rights be waived. The Permit to Appropriate Water was then issued under the following conditions:

1. Subject to all existing water rights in the source of supply.

2. Subject to any final determination of existing water rights, as provided by Montana law.

Mr. Schweke's concern that outlying wells may be harmed by the well field should be alleviated by the knowledge that the full amount of water to be appropriated by the subdivision was used in analyzing any adverse effect, and that the Permit was issued subject to all existing water rights.

cf

ffice Memorandum •

STATE DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES

: Ed Casne, Subdivision Bureau **DATE:** August 24, 1976

M : Bob Braico, Water Quality Bureau RDB

JECT : Reply to E. Casne Memo of 8/10/76

Questions contained in paragraphs 2 and 3, page 2 and paragraph 2, page 6, are adequately answered by Charles Parrett's letter of January 27, 1976 in which he stated:

> " . . . only the extreme southwest corner of the proposed subdivision is subject to flooding from the 100-year frequency flood event. Since this portion of the subdivision is planned only for open-space park use, flooding should not adversely affect the proposed subdivision."
>
> "Although all other portions of the subdivision are beyond the expected 100-year flood limits, we would recommend that the developer locate the proposed sewage lagoon on natural ground that is one foot or more above 3,340 feet (MSL datum) in elevation. This would help insure that the proposed sewage facilities would be reasonably safe from floods larger than the 100-year frequency event (e.g. the 1964 flood event) and would also provide some safety factor against possible error in the calculated 100-year flood limits. We would further recommend that the developer provide a vegetative cover on all sides of the proposed lagoon to minimize potential erosion."

Plans submitted by the developer's engineer indicate the lagoon facility will be located as recommended above. Maintenance of a good vegetative cover will be no problem.

Mr. Schwecke is correct in raising the question described in paragraph 1, page 3, when basing projected sewage flows on an average contribution of 100 gpcd. However, 100 gpcd (a national average) is high for a strictly residential area with no possibility of infiltration from a high groundwater table. Unfortunately, that figure was used in the EIS. If we use 75 gpcd (USPHS Manual of Septic Tank Practice), the consultant's projected flows are reasonable as computed below.

505 single family lots x 3.5 persons/family = 1,767 persons
29 duplex* lots x 3.5 persons x 2 families = 203 persons
1,970 persons
25 commercial lots x ? = ?
1970 persons x 75 gpcd = 147,750 gpd

Menco, Inc. (Basis of Design) used 560 lots x 3 persons/lot x 100 gpcd
= 168,000 gpd

168,000
-147,750
20,250 left for commercial

20,250 gpd ÷ 25 lots = 810 gpd/lot

810/75 gpcd = 10.8 persons (residential equivalent for commercial lots)

*Our phone conversation of 8/23/76

ONTANA DEPARTMENT RESOURCES AND CONSERVATION

ER RESOURCES
DIVISION
ORRIN FERRIS
ADMINISTRATOR

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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GARY WICKS, DIRECTOR

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RECEIVED
AUG 23 1976
MONTANA DEPT. OF HEALTH
& ENV. SCIENCES
SUBDIVISION BUREAU

August 20, 1976

Mr. Edward W. Casne, Chief
Subdivision Bureau
Department of Health and Environmental Sciences
Cogswell Building
Helena, MT 59601

Dear Mr. Casne:

This letter is in response to comments on the proposed Sun Prairie Village which you received from Mr. Duane Schwecke.

Concerning Mr. Schwecke's comment about the dike, I agree that the dikes must be protected from erosion with rock rip-rap or some other suitable material. The top of the dike is well above the 100-year flood elevation. A well protected dike with an impervious core built to the proposed "top of dike" elevation will fully satisfy the State requirements from a Floodway Management standpoint. The impervious core will also help protect the functional operation of the lagoon and help prevent contamination of the immediate area in case of extremely heavy precipitation or other failure occurring within the dike.

The dikes surrounding the lagoon will displace a very small volume of water and will cause no measurable increase in flood elevations.

I hope this letter fully addresses Mr. Schwecke's comments. Please contact me if you have further questions.

Sincerely,

Chuck

Charles Parrett, Chief
Floodway Management Bureau

628.168
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Draft

STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

SEP 24 1974

September 23, 1974

Honorable Thomas Judge, Governor, State of Montana, Helena
Mr. Raymond Corkeek and Mr. Robert Dye, c/o Survco, Inc.,
  103 Commercial Drive, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Department of Intergovernmental Relations, Division of Planning,
  Helena
Department of State Lands, Helena
Department of Highways, Helena
Department of Natural Resources and Conservation, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North
  Bozeman Avenue, Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13th Avenue,
  Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard Ritter, Box 1170, Bozeman
Fish and Game Department, Helena
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center,
  University of Montana, Missoula
Montana State Library, Helena
Ed Mohler, Gallatin County Tribune, 201 Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, University of Montana, Missoula
Consumer Advocate, Governor's Office, Helena
Rick Applegate, Box 931, Bozeman
Joe Sabol, 27 North Tracy, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman
County Assessor, Courthouse, Bozeman
County Sheriff, Courthouse, Bozeman
County School Superintendent, Courthouse, Bozeman
State Superintendent of Public Instruction, Helena
Soil Conservation Service, Federal Building, Bozeman
Gallatin National Forest, Federal Building, Bozeman
Layton Thompson, 918 So. Tracy, Bozeman

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

Carl Anderson, Montana Power Company, Butte
West Yellowstone School Superintendent, West Yellowstone
Environmental Information Center, Last Chance Gulch, Helena
Paul T. Richards, 902 North Park, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Gallatin County Study Team, Montana State University, Bozeman
Dan Smith, Citizens Alert for Guided Growth, 812 South Eighth, Bozeman

The attached draft environmental impact statement has been prepared in compliance with the Montana Environmental Policy Act. Comments and questions will be accepted for at least 30 days following the date on this statement, and a 15-day extension of this period may be granted for good reason.

Further review of the proposed subdivision will proceed in the light of comments received.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer

DV:sh

cc: Ben Wake
Terry Carmody

MONTANA STATE DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

September 23, 1974

Draft Environmental Impact Statement For

HEBGEN LAKE ESTATES, STAGE I,
a proposed subdivision in Gallatin County

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act controlling water pollution, Section 69-4801 through 69-4827, the following draft environmental impact statement was prepared for the above proposed subdivision, for which subdivision plat approval has been requested.

I. DESCRIPTION OF THE PROPOSED ACTION

The developers intend to subdivide 77 acres of pastureland just east of Hebgen Lake into 116 lots. The location of the land is in Section 24, Township 12 South, Range 4 East as shown on the attached map. Development would be restricted to single family dwellings. There would be a Smith and Loveless secondary sewage treatment plant, the effluent of which would be discharged to percolation ponds where reed canary grass would be grown for uptake of the nutrients in the secondary effluent. This grass would be harvested annually.

Sludge from the treatment plant would be hauled to the sanitary landfill near West Yellowstone. A licensed operator is necessary for operation of the sewage treatment facility. There would be some potential for difficulty in operating the secondary system until there was a considerable number of units generating sewage. Until this number was reached, the developer would flush the lines with water brought to the site by a tank truck. This system should prevent clogging of the lines and failure of the system.

Characteristics of the system are noted in Table 1.

Table 1

Wastewater Quality	mg/l	lbs/day	mg/l	lbs/day
Raw Sewage BOD	200	115	200	37
Raw Sewage SS	250	144	250	46

Treatment Plant Effluent	mg/l	lbs/day	mg/l	lbs/day
Effluent BOD to holding pond	15-25	12	15-25	4
Effluent SS to holding pond	20-30	14	20-30	5
Total nitrogen in effluent	20-25	13	20-30	4
Phosphorous in effluent	10-15	7	10-15	2

Treatment Plant Components (Extended Aeration)
two units - each at 35,000 gallons per day

Design Flow	70,000 gallons per day
Aeration Tank	70,000 gallons
Aeration Tank Detention Time	24 hours
Air Capacity	240 CFM
Blower	two at 5 HP

Holding Pond

Volume	Approximately 1,000,000 gallons
Depth	9 feet maximum

Percolation Ponds

Number of ponds	two each
Bottom area, each pond	30,000 square feet
Average Dosing Rate	Annual Average - 0.59 gal/ft^2/day Maximum Summer at Full Occupancy - 1.17 gal/ft^2/day
Percolation Area	Minimum of 12 inches of topsoil, planted to reed canary grass. Mow and remove reed canary grass annually.

The availability of land for additional percolation ponds would have to be assured. This information has not been submitted to date.

Water would be through individual wells where feasible and through the joint use of single wells by several units where individual wells were not feasible. Plans for this joint use of wells have not been submitted at this date.

Roads in the subdivision would be gravel surfaced, with roadside ditches to accommodate runoff. All utility lines would be underground. There are telephone and electrical services at the site now, although new lines would be necessary before full development was reached. The new line would extend about five miles from a 44 kv line, which will soon be installed along the highway to the east according to a spokesman for the Fall River Rural Electric Cooperative, which brings electricity to the area from the Palisades dam in the Bonneville Power system in Idaho.

There would be no publicly financed fire protection for the development, although a pumper truck owned by the developers would offer some protection from home fires.

Access to the development is over Forest Road 610, which also serves U. S. Forest Service camping facilities in the area. At the end of the forest road is a short stretch of private road. One of the developers, Mr. Dye, has a home nearby and said he would be responsible for clearing the road of snow in the winter, at least during the early stages of development.

A commercial trash hauler has affirmed that he could haul the solid waste generated by residents of the subdivision to the sanitary landfill near West Yellowstone.

The developers would maintain surveillance of the sewage plant operation and report the results to the Department of Health and Environmental Sciences. Two test wells near the percolation pond would be tested every three months, and the BOD, suspended solids, nitrogen, phosphorus, and fecal coliform count would be reported to the department along with data on the total weekly flow from the treatment plant.

II. EXISTING ENVIRONMENT

A. Geology and Soils

A report by Donald Alford, a geophysical consultant for the developer, indicated that the surface of this development was approximately equally divided between glacial moraine material and obsidian sand. The moraine material makes fair pasture land, the obsidian sand much less so. Estimates by the Soil Conservation Service indicate that the moraine area would require two acres per animal unit month for cattle if the range was in good condition, which it appears to be. In the obsidian sand area, the range, if in good condition, which it does not appear to be, would require four acres per animal unit month. If the obsidian sand land were in fair condition, it would require seven acres per animal unit month.

The soil at the proposed site of the percolation pond was quite permeable and appeared satisfactory for operation of the pond as suggested. Tests performed there by consulting engineers hired by the developers showed percolation rates of .45 minutes per inch, 6 minutes per inch, .64 minutes per inch, and .60 minutes per inch.

Alford reported that wells should be sunk in the obsidian sand portion of the property as the poor permeability of the moraine material made it unlikely that adequate wells could be found there.

B. Ground and Surface Water

There is no surface water on this property. Groundwater apparently is quite deep in the area of the proposed percolation pond as pits dug more than 13 feet deep showed no moisture. Drillers' logs of wells in the area show that a usable water supply is found anywhere from 40 feet down to just over 100 feet. Some of these wells can supply up to 30 gallons per minute of water, suggesting that as few as three wells could supply the estimated 100,000 gallon per day demand of this development.

C. Vegetation

The surrounding area is largely covered by Lodgepole Pine, but the area of the development supports range grasses and some sagebrush.

D. Weather

High elevation contributes to the cold climate and short growing season experienced in this area. Freezing temperatures may occur any month of the year, and winter minimums commonly exceed -40° F. The elevation of the property is approximately 6600 feet. The average annual precipitation is approximately 27.5 inches, of which half falls as snow in the winter. Structures in the area should be designed for heavy snow loads of up to 300 pounds per square foot, according to the Soil Conservation Service.

E. Wildlife

This area is not critical game range, according to the Department of Fish and Game. It appears to be used mainly by pocket gophers.

F. The Housing Shortage

A report prepared by the U. S. Forest Service indicates that there is a severe housing shortage in the West Yellowstone area, caused in part by the confinement of the town in an enclave of private land confined within the boundaries of Forest Service property where housing development is not allowed. The developers believe this subdivision would help relieve the shortage. A spokesman for the Forest Service said he doubted whether it would have any effect. A considerable amount of subdivision activity already has occurred in the vicinity, as shown on Map B and Figure A in the appendix.

III. ENVIRONMENTAL IMPACTS

A. Water Pollution

In view of the known capacity of the secondary treatment plant and the experience in other areas with percolation ponds and reed canary grass, it appears that the potential for water degradation would be small. Chlorination in the treatment plant will eliminate fecal coliforms. By the time the treated wastewater reaches the groundwater, the BOD and phosphate concentrations would be practically nil. Nitrogen would be reduced to the range of two to four milligrams per liter. According to the department limnologist, any effect on Hebgen Lake would be undetectable.

B. Wildlife

There should be little, if any, impact on wildlife at the site, although it is possible the redistribution of population to subdivisions from towns probably would have some effect. The cumulative impact of all the subdivisions in the area probably is significant, but to date, there has been no attempt to quantify this cumulative impact, so far as the author can ascertain.

C. Law Enforcement

Law enforcement is southern Gallatin County is provided by one deputy sheriff stationed in West Yellowstone. The deputy said that full development of this subdivision, along with others in the same area, could double the population for which he is responsible if residents came from outside the area. He speculated that the continuation of such growth eventually would lead to the need for another deputy. A spokesman for the sheriff's office said another deputy for the area would cost about $15,000 dollars per year. However, in the Bozeman area, burgeoning subdivision has not led to the hiring of new law enforcement staff but has only caused the existing force to be spread thinner. It appears likely that the cumulative impact of continuing subdivision activity in the West Yellowstone area would be similar to that in the Bozeman area, although what impact this one subdivision would have is not clear.

D. Roads

The present access road consists of three miles of gravel surface with dust suppressant treatment applied by the Forest Service and two miles of plain gravel road. The county surveyor indicated that full development of this subdivision would necessitate hard surfacing the road. He estimated a construction cost of $10,000 per mile plus a continuing $400 per mile per year maintenance cost. He said he doubted whether the county would accept responsibility for the road. At any rate, it would appear that the public would pay for surfacing--at least the three miles of Forest Service road 610, which now leads part way to the development area. The additional two miles probably would have to be financed by residents of the several subdivisions in the area that would benefit.

E. Schools

The impact on the schools would depend on the number of children, which in turn would depend on the number and age of full-time residents. Elsewhere in Montana, research by the office of the State Superintendent of Public Instruction has shown that young families new to the state, such as in the Colstrip area, average 8/10ths child per family. At this rate, about 96 children might eventually come to school from this subdivision. However, it seems likely that the majority of the land buyers would be seasonal residents who would not send children to school in West Yellowstone.

As a reasonable estimate, it would appear that no more than 20 students would ever live in this development. The West Yellowstone school could accommodate this number without difficulty, according to the school superintendent. At present, the school as 110 students in grades one through six and 94 students in grades seven through twelve.

The superintendent said the student body is growing about seven percent per year, and the school could accommodate almost a 100 percent increase in students without further cost beyond expenditures for additional textbooks. He said the school building is "a lean-to against a lean-to," which will have to be rebuilt inside five years regardless of whether the student body continues to expand.

The transportation of students from the development, however, would cause some expense. If there were 12 or fewer students, the school would pay the parents to haul them. For example, where there were two students in the same family, the school would pay the parents

$36 a semester for transportation. If there were more than 12 students in the development, a bus probably would haul them, according to the county school superintendent. This additional distance would cost 20.5 cents a mile for approximately 20 miles a day for a total of approximately $740 per year. This cost would be divided equally among the state, county and local governments.

Discussion with the West Yellowstone school superintendent indicated that subdivisions were an effect of growth rather than a cause. He said population growth in the area is being caused by the increasing popularity of winter sports, which makes it possible for people to make a living by providing services for visitors on a year-round basis.

F. Taxes and Economic Impact

There would be a substantial increase in tax revenue from the land following subdividing. At present, the land is assessed at approximately $6 per acre, of which the taxable value is $1.80. By applying the 149.12 mill levy to this $1.80 and multiplying times 77 lots, we see that the land, at present, brings in about $21 a year in taxes. Similar land that has been subdivided in the area is assessed at about $180 per acre. At this rate, the 77 acres of land in question would bring in about $620 a year after it was subdivided and sold. It would bring in only half this amount after it was subdivided and before it was sold, because of the 50 percent tax break granted to subdividers in Gallatin County.

If a $30,000 house were built on each lot, an additional $62,421 in tax revenue would be realized.

Thus, the increase in tax revenues appears to cover the obvious increases in public expense that would result from the development. The state also would receive a substantial increase in income taxes if more persons lived and worked in the area year-round, although the subdivision would not be the cause of their decision to stay there.

Economists undoubtedly could find many more costs and benefits associated with this development, but the analysis above is the best that can be accomplished within a reasonable time for the purposes of this statement.

G. Visual Impacts

The open meadow now in existence would be replaced by a suburban development. All construction in the development must be approved by an architectural committee composed of other lot owners. The committee probably would be able to prevent the construction of unslightly buildings that would severely impact the view.

IV. ALTERNATIVES AVAILABLE TO THIS DEPARTMENT

A. Grant subdivision plat approval for 116 living units as requested.

B. Deny approval of the subdivision plat.

C. Approve the plat subject to certain conditions.

From information submitted on this development, it appears that the plat could be approved providing plans and specifications regarding the proposed joint water systems are submitted and approved, that availability of land for possible additional percolation ponds is assured, and that questions raised in response to this statement can be answered satisfactorily.

V. CONCLUSIONS

There appears to be no reason the development should not be approved as requested, provided the additional information cited under section IV is submitted and approved. The information available will be reviewed in light of comments received in response to this statement.

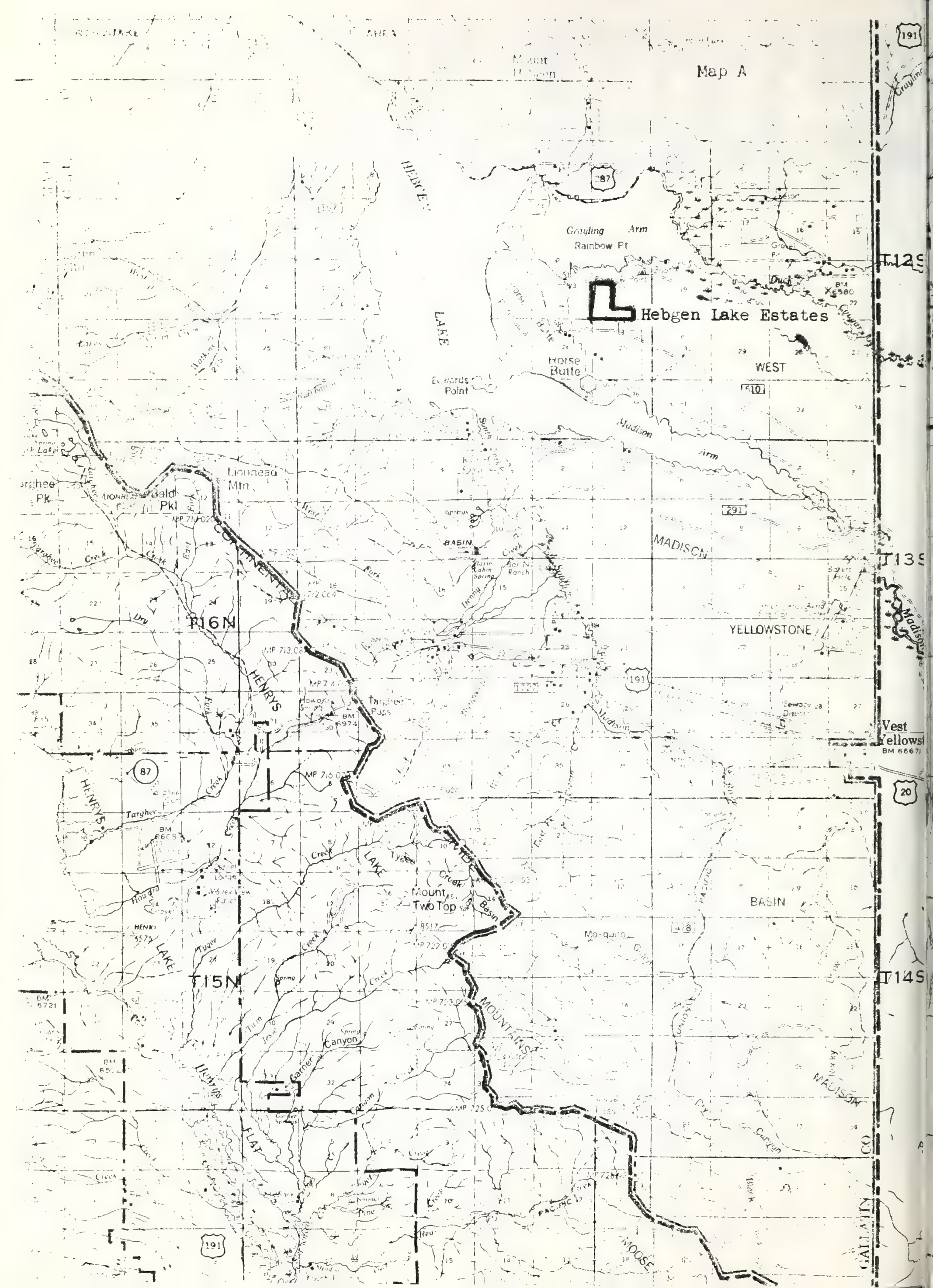
VI. AUTHORS AND SOURCES OF INFORMATION

This impact statement was written by Daniel Vichorek, Technical Writer, Environmental Sciences Division. Information was furnished by the developers and their consultants and by the office of the Gallatin County Superintendent of Schools, the County Surveyor, the Department of Fish and Game, the superintendent of the West Yellowstone School, the U. S. Forest Service, the County Assessor's office, the office of the State Superintendent of Public Instruction, the office of the Gallatin County planners, the Gallatin County sanitarians, the Montana Power Company, Dr. Layton Thompson of the Montana State University, the Soil Conservation Service, the County Sheriff, Abe Horpestad, Limnologist for the Water Quality Bureau, Will Garvin, engineer for the Water Quality Bureau, and Al Keppner, soil scientist for the Water Quality Bureau.

FIGURE A

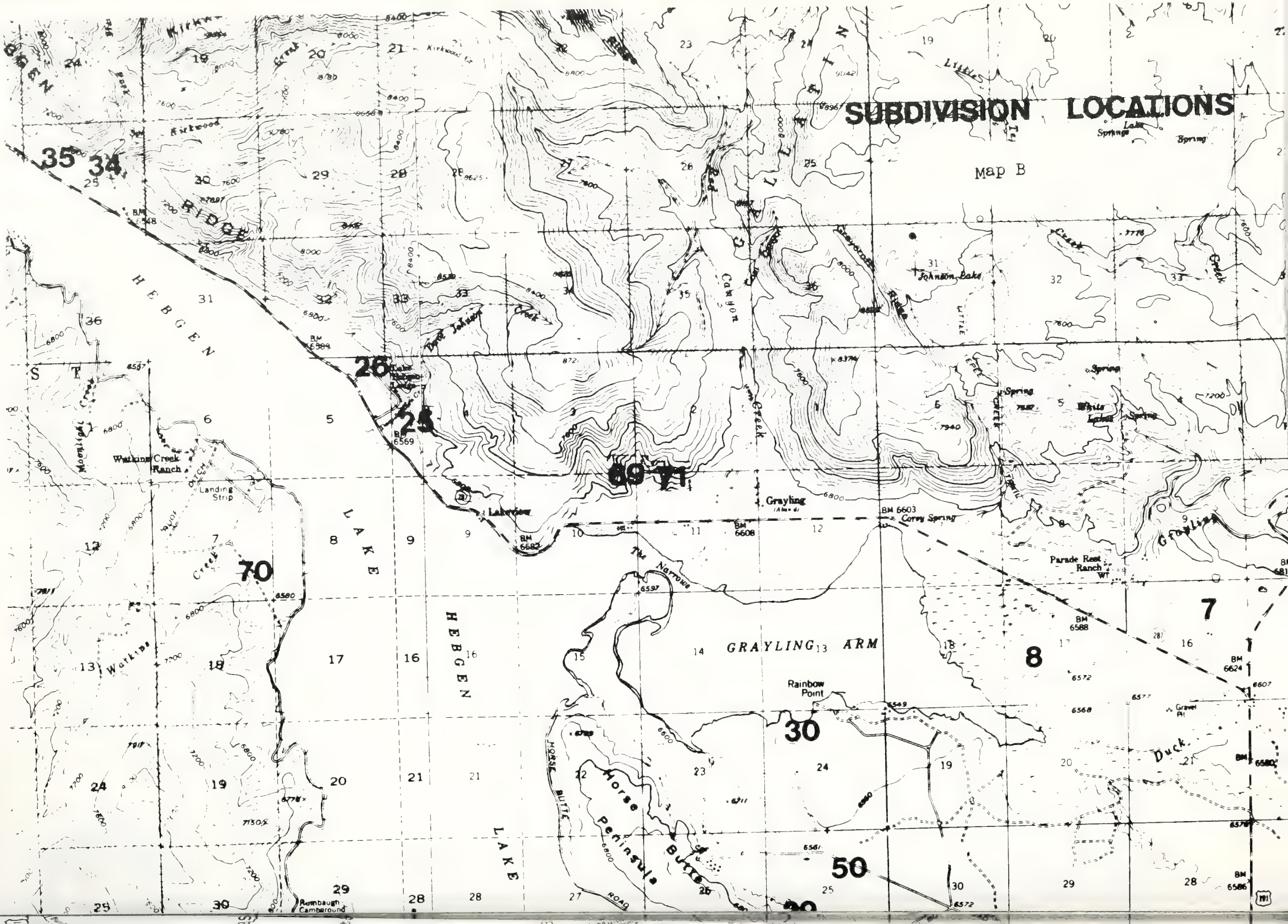
Key to Map B

Name of Subdivision	Location	Number of Lots	Average Size of Lots	Total Acres	Number of Lots Developed	Number of Lots Undeveloped	Number of Lots Sold to Private Parties	Number of Lots Held by Developer	Type of Subdivision	Date Recorded
1	2	3	4	5	6	7	8	8	10	11
BEAR TRAP RANCH ⑦	Co.	26	4.2 ac.	20.1	7	19	14	12	Recreational	12-10-70
BEAR TRAP RANCH NO. 2 ⑧	Co.	56	2 ac.	182.7	3	53	15	41	Recreational	12-09-71
BUCKLEY TRACT ⑮	Co.	2	1.3 ac.	2.6	0	2	0	2	Private Res.	11-27-72
HEBGEN LAKE NO 1 ㉕	Co.	35	180'x210'	38.2	7	28	6	29	Recreational	5-03-66
HEBGEN LAKE NO 2 ㉖	Co.	50	220'x200'	58.5	0	50	3	47	Recreational	5-23-66
HORSE BUTTE ㉙	Co.	19	1 ac.	26	0	19	3	16	Recreational	9-15-70
KIRKWOOD RIDGE MEADOWS ㉞	Co.	30	10,000 sq. ft.	9.8	9	21	23	7	Recreational	11-06-67
RANCHO VISTA CABIN SITES ㊿	Co.	14	200'x136'	7.8	2	12	14	0	Recreational	10-11-66
YELLOWSTONE HOLIDAY NO. 1 (69)	Co.	63	.5 ac.	30.3	9	54	54	9	Recreational	1-06-66
YELLOWSTONE HOLIDAY NO. 2 (70)	Co.	6	80'x36'	.75 ac.	6	0	6	0	Recreational	12-05-66
YELLOWSTONE HOLIDAY NO. 3 (71)	Co.	137	15,400 sq. ft.	68.9	0	137	1	137	Recreational	2-11-70
PROPOSED KIRKWOOD MEADOWN ㉟	Co.	32	.25 to 5	15.5					Recreational	
PROPOSED HEBGEN LAKE ESTATES ㉚	Co.	149	.25 to 1	77 - 20 lots of the 149 are for Mobile Homes					Recreational	



Map A

Hebgen Lake Estates
Mount Hebgen
HEBGEN LAKE
Grayling Arm
Rainbow Pt
Horse Butte
Edwards Point
Madison Arm
WEST MADISON YELLOWSTONE BASIN
T12S
T13S
T14S
T16N
T15N
Lionhead Mtn
Bald Pk
Targhee Pk
Targhee Creek
Targhee Pass
BM 6974
Basin
Basin Cabin Spring
Bar N Ranch
Mount Two Top
8517
HENRYS LAKE
HENRYS LAKE FLAT
CONTINENTAL DIVIDE
HENRYS LAKE MOUNTAINS
Garner Canyon
Tygee Creek
Howard Creek
BM 6721
Mosquito Gulch
West Yellowstone
BM 6667
Madison River
Duck Creek
Cougar Creek
Sewage Disposal
Pacific Creek
Moose Creek
Black Canyon
GALLATIN CO
MP 710.020
MP 712.004
MP 713.06
MP 714.0
MP 716.0
MP 722.0
MP 723.0
MP 725.0
MP 728
191
287
87
20
291
722
478
10
BM 6605
BM 6580



SUBDIVISION LOCATIONS

Map B

S
628.168
H2

STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

Hoerner Waldorf

July 10, 1974

JUL 11 1974

Governor Thomas Judge, State Capitol Building, Helena, Montana 59601
Montana State Library, 930 East Lyndale, Helena, Montana 59601
Missoula Public Library, Missoula, Montana 59801
University of Montana Library, University of Montana, Missoula, Montana 59801
Ron Erickson, Chemistry Department, University of Montana, Missoula, Montana 59801
Hoerner-Waldorf Corporation, Missoula, Montana 59801
Don Schwenessen, The Missoulian, Missoula, Montana 59801
Missoula Area Chamber of Commerce, 207 East Main Street, Missoula, Montana 59801
Maxine Johnson, Economics Department, University of Montana, Missoula, Montana 59801
Malinda Schall, Economics Department, University of Montana, Missoula, Montana 59801
Thomas M. Power, Route 2, Bass Creek, Stevensville, Montana 59870
Dr. Clancy Gordon, Botany Department, University of Montana, Missoula, Montana 59801
Arnold Silverman, Geology Department, University of Montana, Missoula, Montana 59801
Mayor Robert E. Brown, City of Missoula, Missoula, Montana 59801
Peggy Schaefer, GASP, 500 Daly Avenue, Missoula, Montana 59801
Samuel Reynolds, The Missoulian, Missoula, Montana 59801
Richard Konizeski, School of Forestry, University of Montana, Missoula, Montana 59801
Robert Curry, Department of Geology, University of Montana, Missoula, Montana 59801
Don Aldrich, Montana Wildlife Federation, 410 Woodworth Avenue, Missoula, Montana 59801
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton, MT 59840
Bill Kendall, Trout Unlimited, 715 Beverly Street, Missoula, Montana 59801
Board of County Commissioners, Missoula County, Missoula, Montana 59801
City-County Health Department, Courthouse Annex, Missoula, Montana 59801
City-County Planning Office, Missoula, Montana 59801
Bill Tomlinson, Student Environmental Research Center, Venture Center, University of Montana, Missoula, Montana 59801
Dean, School of Forestry, University of Montana, Missoula, Montana 59801
James Posewitz, Administrator, Environment and Information Division, Department of Fish and Game, Mitchell Building, Helena, Montana 59601
Department of Conservation and Natural Resources, 32 S. Ewing, Helena, Montana 59601
Department of State Lands, Capitol Building, Helena, Montana 59601
Division of Planning and Economic Development, Capitol Building, Helena, Montana 59601
Region 1, U.S. Forest Service, Missoula, Montana 59801
Bureau of Land Management, State Headquarters, Federal Building, Billings, MT 59101
Fern Hart, League of Women Voters, 16 Carriage Way, Missoula, Montana 59801
Inland Forest Resources Council, Howard McDowell, 612 Savings Center Building, Missoula, Montana 59801
Montana Wood Products Association, W. M. Kirkpatrick, 612 Savings Center Building, Missoula, Montana 59801
Lester Tschannen, Big Sky West 2717 Valley View, Missoula, Montana 59801
Evans Products, W. R. Bickerton, Drawer L, Missoula, Montana 59801
U.S. Plywood, W. E. Butler, Drawer 7, Bonner, Montana 59823
G. L. Owen, 7001 Bitterroot Road, Missoula, Montana 59801
Bureau of Land Management, 1819 Holborn, Missoula, Montana 59801
Clint Carlson, U.S. Forest Service, Federal Buidling, Missoula, Montana 59801
Ron Schleyer, Lee State Bureau, 317 Allen Street, Helena, Montana 59601

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930 East Lyndale Avenue
Helena, Montana 59601

Charles O'Boyle, Region VIII, Environmental Protection Agency, 1860 Lincoln Street, Denver, Colorado 80203
James Herlihy, OAP, R.T.P., Environmental Protection Agency, Research Triangle Park, North Carolina 27711
Tom Kotynski, Great Falls Tribune Capitol Bureau, Capitol Plaza, Helena, MT 59601
Associated Press, 317 Allen, Helena, Montana 59601
United Press International, Helena, Montana 59601
J. W. Bartlett, Chairman, P.O. Box 788, Whitefish, MT 59937
Mrs. Rita Sheehy, 1041 Poly Drive, Billings, Montana 59101
R. C. Ritter, D.D.S., P.O. Box 1170, Bozeman, Montana 59715
John Newman, M.D., P.O. Box 3493, Butte, Montana 59701
Dr. John M. McGregor, Great Falls National Bank Building, Great Falls, Montana 59401
Leonard Eckel, 1727 11th Avenue, Helena, Montana 59601
John S. Anderson, M.D., Director, State Department of Health and Environmental Sciences, Cogswell Buidling, Helena, Montana 59601
Douglas Ashton, 4041 Helberg Drive, Helena, Montana 59601
Richard Dightman, 1822 Winne Avenue, Helena, Montana 59601
Walter Everly, P.O. Box 603, Butte, Montana 59701
Bruce A. Allison, M.D., 502 Second Avenue East, Kalispell, Montana 59901
Lewis J. D. Maxson, 1726 Sherwood, Missoula, Montana 59801
Frank Popiel, 1212 S. Second, Hamilton, Montana 59840
Conrad O. Orr, D.V.M., 3701 Highway 93 South, Missoula, Montana 59801
Paul Kleffner, East Helena, Montana 59635

Ladies and Gentlemen:

In response to a request, this department has granted a 15-day extension of the 30-day waiting period following publication of the draft impact statement on the proposed Hoerner-Waldorf expansion. Comments will be accepted through August 7, 1974.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

DV:dg

628.168
H2e

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

NOV 1 2 1973

November 6, 1973

Board of County Commissioners, Courthouse, Helena
City-County Planning Board, 38 South Main, Helena
City-County Health Department, 201 South Main, Helena
Environmental Quality Council, Helena
Montana Fish and Game Department
Department of Intergovernmental Relations, Division of Planning and Economic Development, Helena
Independent Record, Helena
Helena District Ranger, U. S. Forest Service, Airport Road, Helena
Bruce A. and Betty R. Nelson, 1401 11th Avenue South, Great Falls
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Dr. Jean Smith, Last Chance Audubon Club, Carroll College, Helena
Mr. Rick Graetz, 1300 1/2 Cedar, Helena Outdoor Club and Prickly Pear Sportsmen's Club, Helena
Mrs. Pat Antonick, 1400 North Benton Avenue, Sierra Club, Helena
Mr. Bob Newman, Bureau of Land Management, 1819 Holborn, Missoula

Gentlemen:

The enclosed final environmental impact statement has been prepared for Holter Lakeshores, a proposed subdivision in Lewis and Clark County, Montana. This is submitted for your review and comments.

If you have any questions or comments, please feel free to contact this office.

Sincerely yours,

D. G. Wille

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Ben Wake

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

Final Environmental Impact Statement
for
HOLTER LAKESHORES

A proposed subdivision in Lewis and Clark County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 5005; and the act to control water pollution, Section 69-4801 through 4827, the following statement was prepared by the Environmental Sciences Division of the State Department of Health and Environmental Sciences concerning Holter Lakeshores for which a request has been received for removal of the sanitary restrictio prior to the installation of sewage disposal or water supply facilities on subdivisions with lots ten acres or smaller.

Location

This project is located on the west shore of the Oxbow Bend on Holter Lake in Section 27, Township 14 North, Range 3 West, M.P.M., Lewis and Clark County, Montana, lying above the elevation of the project boundary of Federa Power Commission Project No. 2188 (Holter Development).

Description of proposed project

The owners, Bruce A. and Betty R. Nelson of Great Falls, would divide 22.5 acres into 35 lots ranging in size from 0.459 acre to 1.34 acre. The fundamental design of the tract is a curvilinear grid along the Holter Lake shoreline with six of the lots not being adjacent to the lakeshore. A 20-foot wide easement would provide lake access to these lots. The property is presently served by the Montana Power Company for electrical service. Access to the property is strictly limited to water transportation due to the regional topography, which prevents the construction of access roads.

A declaration of conditions, covenants and restrictions require all human wastes to be disposed of through the use of approved incinerator units. It is proposed to dispose of other wastewaters through the use of subsurface drainfields.

The developers propose that the lot owners use small chlorinating units to process lake water for domestic purposes. Small portable well drilling rigs that can be transported by boat and operated by two men are reported to be available for rent in Great Falls. A spokesman for the county health department states that many of the residents of nearby developments haul in their drinking and cooking water by boat and use lake water for irrigation.

The declaration of conditions, covenants and restrictions require that rubbish and garbage shall be kept and disposed of in an orderly manner so that such materials shall not be visible or exposed. No trash burning would be allowed in the subdivision.

Topography and Soils

This property is moderately steep to steep mountainous rocklands with little soil development. As described by the Montana Bureau of Mines and Geology, the area is dominated by Cretaceous volcanic flows and pyroclastic rocks, mainly of intermediate composition, with subordinate amounts of interbedded sedimentary rocks.

Percolation rates measured on each lot by land surveyor Louville Garske averaged 40 minutes per inch, which is adequate for sanitation purposes.

Soil test pits indicated that most of the soil in this area are mainly an angular cobbly to stoney light clay loam with little horizonal development. However, the northern most five lots have soil profiles relatively free of consolidated material down to ten feet. No indications of groundwater were found in the test pits.

The existence of Holter Dam precludes the property from being inundated by a 100-year flood.

Surface resources

The existing vegetative cover is dominated by native grass species with some associated forbs. A few scattered ponderosa pine and juniper enhance the landscape. A few head of cattle currently utilize the native range.

No osprey (Pandion haliaetus) or bald eagle (Haliaeetus leucocephalus) nests have been discovered on or in close proximity to the proposed subdivision. The extent of big game use of the property is unknown, but the Montana Fish and Game Department did not indicate the development would be detrimental to big game species in their response to the draft environmental impact statement.

Impact

Impacts from development of this property would undoubtedly fall within the range associated with the residential use of a steep, mountainous lakeshore property. A visual impact would result from the proposed development. This would be reduced somewhat by the declaration of conditions, covenants and restrictions which states: "Each owner of a lot on which there is a structure shall provide exterior maintenance upon such lot and structure to include straining, painting and repairing the structures. Colors of all improvements shall be selected to blend with the natural beauty of the area." The severity of the visual impact is purely speculation and the desirability is a matter of personal aesthetic values.

The potential for significant air pollution seems minute. No dust from roads would be created and emissions from heating plants would be minimal as the property is not easily accessible during the colder months.

This proposed subdivision, along with the other developed property in the area, would undoubtedly have an effect on wildlife species present; but the effect of this single development is difficult to access. Domestic pets could decimate small animals and birds in the vicinity.

There exists a potential for increased sedimentation in Holter Lake due to construction on lots on the steeper slopes. This undesirable situation can be avoided by prohibiting land disturbance on steep sites. Shoreline erosion and subsequent sedimentation could be accelerated by increased boating activity. A protective covenant providing for minimal docking facilities would be desirable.

There would be no impact on the local school system as the remoteness and difficulty of access preclude year-around residency. However, the increased property valuation would generate additional revenue for the school district. The primary social impact would be in the demand for parking facilities and boat launching sites as water transportation is the only readily available means of access. Yacht clubs are available at the upper and lower ends of the lake to fill this need.

A volunteer fire fighting group reportedly serves a nearby subdivision and another similar group could minimize the fire danger that would result from the subdivision.

Alternatives available to this department

1. Remove the sanitary restriction on the subdivision as submitted. Because of the physical nature of the property, the department finds this alternative unacceptable.

2. Remove the sanitary restriction on all the lots after modifications have been made that bring all lots into minimum compliance with department requirements. Again, because of the physical nature of the property, the department finds this alternative unfeasible.

3. Refuse to remove the sanitary restriction on all the lots within the proposed subdivision. The environmental review process did not indicate the department can justify this action.

4. Remove the sanitary restriction on portions of the property that can meet department requirements with respect to water supply, sewage disposal, solid waste disposal and water quality. This department can implement this alternative under the following prescribed conditions.

    a. Due to the steep topography of the land where a potential exists for increased sedimentation due to construction activities, this department will not remove the sanitary restrictions on Lots 6, 7, 8, 9, 13, 14, 15, 16, 17, 18, 19, 20, 31, 32, 33, 34 and 35.

These lots are also unsatisfactory as sites for wastewater disposal due to the topography.

b. That human wastes be disposed of through the use of approved incinerator units. Other wastewater is to be disposed of through the use of subsurface drainfields that are located at a minimum distance of 100 feet from the high water level of Holter Lake and 100 feet from any wells that may be drilled upon the property.

c. Water supplies may be developed in one of two ways. A well may be drilled on the property to a minimum depth of 25 feet. Holter Lake water may be used for domestic use provided the water intake is located a minimum of ten feet below the low water level and that sufficient water storage be provided to allow a minimum of 20 minutes contact time with the disinfectant.

d. The covenant covering the disposal of garbage and other solid wastes is not strong enough to insure proper disposal. Since commercial scavanger service to serve the property is not available, a strictly enforced pack in/pack out policy should be included as a covenant.

e. It is suggested that a protective covenant providing for minimum docking facilities would be desirable. This would reduce the potential for shoreline erosion and subsequent sedimentation as well as reduce the visual impact of the proposed development.

Short-term/long-term comparisons

Long-term worth is best represented by the intangible value inherent in leaving the land undeveloped for wildlife habitat and as an aesthetic shoreline bordering a recreational body of water. In the short-term, the land's most economically valuable as a recreational home subdivision. However, recreational subdivisions generally tend to reduce the recreational value of their surroundings.

Irreversible commitment of resources

There would be a commitment of non-recyclable building materials used in the construction of second homes. The proposed subdivision would break the land into a multiplicity of ownerships which would probably be irrevokable.

Comments

During an inspection to the site on the 29th of August, 1973, it was noted that cabins were under construction on Lots 2, 5, 11, 12, 21, 24 and what appeared to be Lot 28. As the sanitary restrictions are in effect, all such building is in flagrant violation of state statutes and department regulations.

Response to the draft environmental impact statement

Five letters were received in response to the draft statement. Because of substantial criticism offered by the Bureau of Land Management, the Environmental Quality Council recommended that a final statement be prepared. An effort was made to deal with all comments in the body of this statement.

This department will remove the sanitary restriction under the conditions noted in alternate four no sooner than 30 days following issuance of this statement as required by the Montana Environmental Policy Act. The restrictions would be removed with the understanding that all water and sewer facilities are to be installed under the supervision of the Lewis and Clark County Health Department.

This statement was prepared by Alfred P. Keppner, Soils Scientist, with information furnished by the developer; A. W. Clarkson, P.E., Water Quality Bureau; Daniel Vichorek, Technical Writer; the Soil Conservation Service; and the Lewis and Clark County Health Department.

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JUN 2 8 1978.

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601
ENVIRONMENTAL SCIENCES DIVISION - Phone: 449-3946

A. C. Knight, M.D., F.C.C.P.
Director

June 27, 1978

Honorable Thomas Judge, Governor, State of Montana, Helena, MT, 59601
Honorable Ted Schwinden, Lieutenant Governor, State of Montana, Helena, MT, 59601
Dr. Ray Gold, Institute of Social Research, U of M, Missoula, MT 59801
Department of Sociology, U of M, Missoula, Missoula, MT 59801
Ravalli County Planning Board, Courthouse, Hamilton, MT 59840
State Department of Revenue, Property Assessment Div., Real Property Bureau, Helena, MT 59601
Ravalli County Extension Service, 205 Bedford, Hamilton, MT 59840
Soil Conservation Service, 111 Old Corvallis Road, Hamilton, MT 59840
Bitterroot Chamber of Commerce, 105 E. Main, Hamilton, MT 59840
Department of Community Affairs, Planning Division, Helena, MT 59601
Department of Community Affairs, Human Resources Division, Helena, MT 59601
Ravalli County Sanitarian, Courthouse, Box 5019, Hamilton, MT 59840
Department of Fish & Game, Ecological Services Division, Helena, MT 59601
U.S.F.S., Bitterroot National Forest, 316 North 3rd, Hamilton, MT 59840
Department of Labor & Industry, Employment Security Division, Helena, MT 59601
Florence - Carlton School Board, Florence, MT 59833
Montana Power Company, 104 Main, Hamilton, MT 59840
Mountain Bell, 201 North 3rd, Hamilton, MT 59840
Ravalli County Sheriff, 205 Bedford, Hamilton, MT 59840
Florence Volunteer Fire Department, Florence, MT 59833
Department of Highways, Engineering Division, Helena, MT 59601
Department of Natural Resources, Water Resources Division, Helena, MT 59601
Department of Natural Resources, Floodway Management Section, Helena, MT 59601
Montana Bureau of Mines & Geology, c/o Montana Tech, W. Park, St., Butte, MT 59701
Department of Community Affairs, Research and Information Systems Division, Helena, MT 59601
Department of Geology, U of M, Missoula, MT 59801
Department of Health & Environmental Sciences, Air Quality Bureau, Helena, MT 59601
Department of State Lands, Helena, MT 59601
Department of Anthropology, U of M, Missoula, MT 59801
Environmental Information Center, Box 12, Helena, MT 59601
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North Rockies Action Group, 9 Placer Street, Helena, MT 59601
Concerned Citizens for a Quality Environment, c/o Ron Erickson, U of M, Missoula, MT 59801
Montana Wildlife Federation, Box 4373, Missoula, MT 59801
Montana Power Company, Attn: Carl Anderson, 40 E. Broadway, Butte, MT 59701
Resource Education Foundation, Inc. Box 1148, Helena, MT 59601
Defenders of Wildlife, Attn: Hank Fischer, 947 Rimini Court, Missoula, MT 59801
Montana Wilderness Association, 4000 - 4th Avenue North, Great Falls, MT 59401
Sierra Club, 509 Hill, Missoula, MT 59801
Trout Unlimited, Attn: Jim Handley, Box 140, Manhattan, MT 59741
Rick Applegate, 427 N. Tracy, Bozeman, MT 59715
Bitterroot Sanitation, c/o Charles Mann, P.O. Box 247, Victor, MT 59875
Stevensville Public Schools, School District #2, S. Park, Stevensville, MT 59870
Stevensville Public Schools, School District #13, Lone Rock NE of Stevensville,
  Stevensville, MT 59870
Stevensville City Fire Department, Stevensville, MT 59870
Stevensville Rural Three Mile Fire Department, Stevensville, MT 59870
Stevensville Volunteer Ambulance Service, Stevensville, MT 59870
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Mrs. Peggy Munoz, S.E. 179 Meadowlark Lane, Hamilton, MT 59840
Pat Zeiler, Ravalli Republic, Box 433, Hamilton, MT 59840
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Mr. Charles Martin, c/o Professional Consultants, Inc., Box 3416, Missoula, MT 59
Mr. Harry Johnson, c/o Professional Consultants, Inc., Box 3416, Missoula, MT 598
Mr. James D. Stover, c/o Professional Consultants, Inc., Box 3416, Missoula, MT 5
Mr. Matthenson Green, c/o Applebury Survey, Rt. 1, Box 47, Victor, MT 59875
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Mr. John Reely, c/o Professional Consultants, Inc., Box 3416, Missoula, MT 59806
Mr. Dean Turner, c/o Professional Consultants, Inc., Box 3416, Missoula, MT 59806
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Ravalli County Road Department, 330 E. Fairgrounds Road, Hamilton, MT 59840
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Charles and Edna Muir, Rt. 1, Box 57, Florence, MT 59833
Barbara C. Cole, 313 South Fifth Street, Hamilton, MT 59840
Sue Jones, Rt. 1, Box 76ab, Victor, MT 59875
Bill Thomas, Department of Fish and Game, 3309 Brooks Street, Missoula, MT 59801
Dr. Bill Willavize, Florence-Carlton School, Florence, MT 59833

The enclosed environmental impact statement has been prepared for the proposed Hensler Ranch Subdivisions in Ravalli County. This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days after the date of this publication. The DHES will forward the comments to the developers. All comments should be sent to the Subdivision Bureau, Environmental Sciences Division, Montana Department of Health and Environmental Sciences, Helena, MT, 59601.

Sincerely,

Edward Casne, Chief
Subdivision Bureau

MONTANA DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

ENVIRONMENTAL IMPACT STATEMENT

THE HENSLER SUBDIVISIONS
PROPOSED SUBDIVISIONS

RAVALLI COUNTY

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001; and the act to control water pollution, Section 69-4801, the following environmental impact statement (EIS) was prepared by the Montana Department of Health and Environmental Sciences (DHES), Environmental Sciences Division, concerning the request for administrative approval of the HENSLER SUBDIVISIONS, proposed subdivisions near Florence, Montana.

INTRODUCTION

This EIS is prepared pursuant to the only opinion of the Montana Supreme Court which addresses the responsibilities of the DHES to review subdivisions under the Sanitation in Subdivisions Act, Title 69, Chapter 50, R.C.M., 1947, and the Montana Environmental Policy Act (MEPA), Title 69, Chapter 65, R.C.M. 1947. That case, The Montana Wilderness Association et al. vs. The Board of Health and Environmental Sciences of the State of Montana et al., 33 St. Rep. 1320, (hereinafter referred to as the "Beaver Creek South" case) indicates that the department's substantive decision-making authority to approve or deny subdivisions is limited to a consideration of whether proposed water supply, sewage disposal and solid waste disposal systems are adequate to protect public health and prevent water pollution.

The Beaver Creek South opinion does not indicate that the department is relieved of its responsibilities to prepare an EIS which, "to the fullest extent possible," satisfies the requirements of MEPA and the rules adopted by the DHES and the Board of Health and Environmental Sciences implementing MEPA (rules MAC 16-2.2(2)-P2000 through P2080). Therefore, although the Beaver Creek South opinion indicates that the department may only base final approval or disapproval of a subdivision on the criteria and statutory authority contained in the Sanitation in Subdivisions Act, the DHES does believe that it still has MEPA responsibilities. The MEPA analysis contained in this EIS attempts to analyze in detail the three statutory criteria upon which the department may make a substantive decision--water supply, sewage and solid waste disposal--while still addressing the basic land use and environmental impacts that the Montana Supreme Court has indicated are a part of a local government's substantive decision-making authority under the Subdivision and Platting Act, Title 11, Chapter 38, R.C.M. 1947.

It must be emphasized that the DHES fully appreciates the fact that the Beaver Creek South opinion does not address the substantive questions concerning the scope of review required under MEPA when specific legislative limitations and directives have been imposed pursuant to other statutes. Therefore, to the extent that the DHES must interpret what MEPA responsibilities must be performed in light of the specific limitations on the department's final decision-making authority under the Sanitation in Subdivisions Act, this EIS has been prepared in conformity with the requirement of Section 69-6504, R.C.M. 1947, that the analysis comply with MEPA.

Because of the time limitations imposed on the DHES by the Sanitation in Subdivisions Act, the department is unable to circulate the draft EIS for the full 30-45 days anticipated by MEPA. Despite this limitation, the DHES made every effort to comply with MEPA to the fullest extent possible.

DESCRIPTION

The former 6,000-acre Hensler Ranch consists of three large tracts of land. Two are about two miles east of Florence (Reference map # 1), and the other is further east in Sapphire Mountains. The property in the mountains has been sold to Burlington Northern, Inc.

One of the tracts near Florence is 2,500 acres and the other is 1,950 acres. Included in the larger parcel is a proposed major subdivision, three occasional sales and 18 minor subdivisions. The proposed developments total 1,292 acres, with the remaining 1,208 acres divided into 20-acre plots (Reference map # 2). The 2,500 acres combine parts of 11 sections (Sections 4, 5, 6, 7, 8, 9, 16, 17, 18, 20 and 21).

The adjacent land is southeast of the 2,500-acre tract, and encompasses about 1,950 acres. The land has not been developed, but could be in the furture.

The major subdivision is Riverview Orchards. The developers, Val Holmes, Robert Greene and Marion Sterns, Missoula, Montana, propose to subdivide the 802 acres into 154 lots, ranging from 4.26 to 11.55 acres. It is in portions of Sections 5, 6, 7 and 8, T10N, R19W.

The occasional sales include:

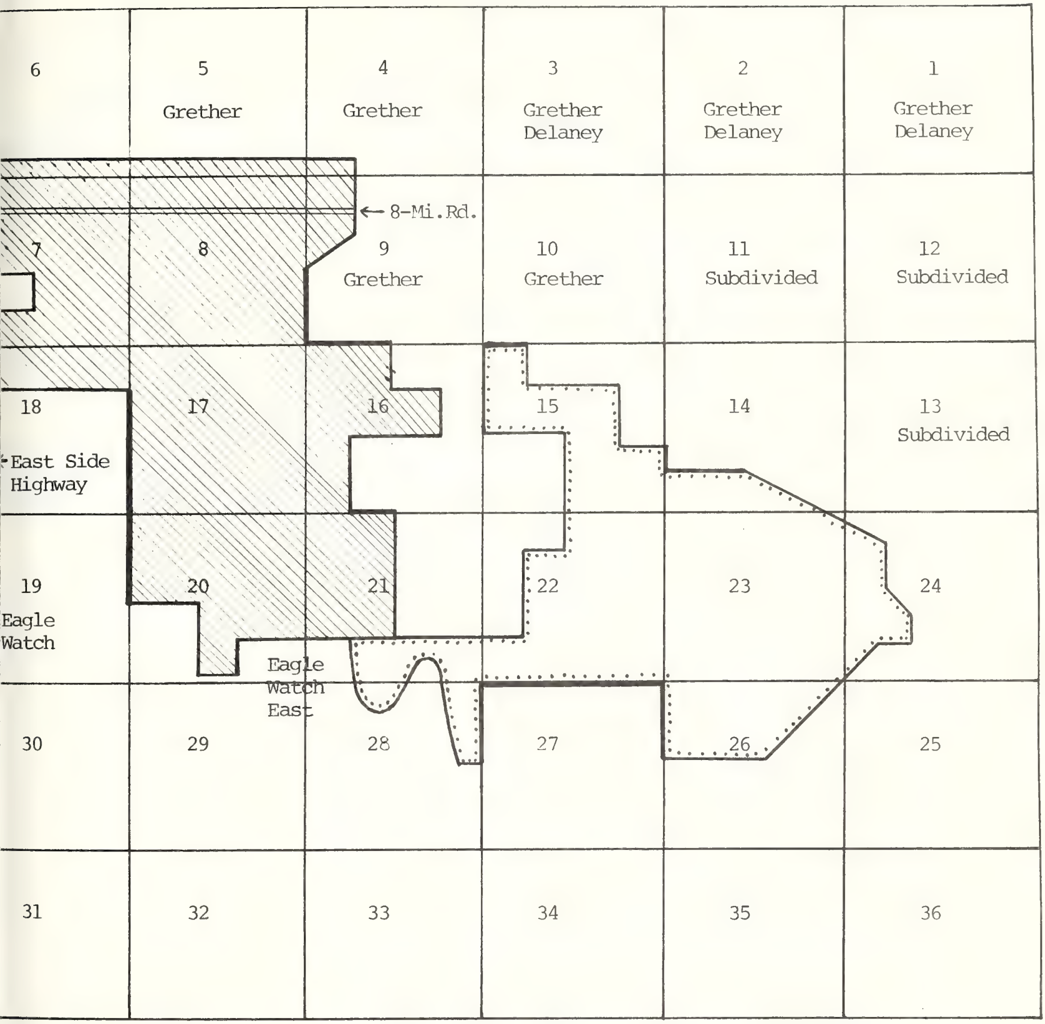
1. Short Grass Gulch Addition - The occasional sale divides a 21.50-acre parcel into two equal lots, in Certificate of Survey (COS) 1503. The addition is in Section 17, T10N, R19W, and is owned by John Reely, Missoula, Montana.

2. Pine Meadows Addition - The occasional sale splits a 21.50-acre parcel into two equal lots, in COS 1503. The addition is in Section 17, T10N, R19W, and is owned by Linda Reely and Barbara Koessler, Missoula, Montana.

3. William McNulty Parcels - The occasional sale, remainder and six releases to immediate family members divides 40.04 acres into eight lots ranging from 5 to 5.01 acres. The parcels are in Section 20, T10N, R19W, and are owned by William McNulty, Missoula, Montana. The McNulty occasional sale and most of the minor subdivisions are all part of COS 1316 or Hidden Valley Ranches, unless otherwise indicated. Hidden Valley Ranches is composed of 71 lots, 20 acres or larger in size.

Reference Map # 1

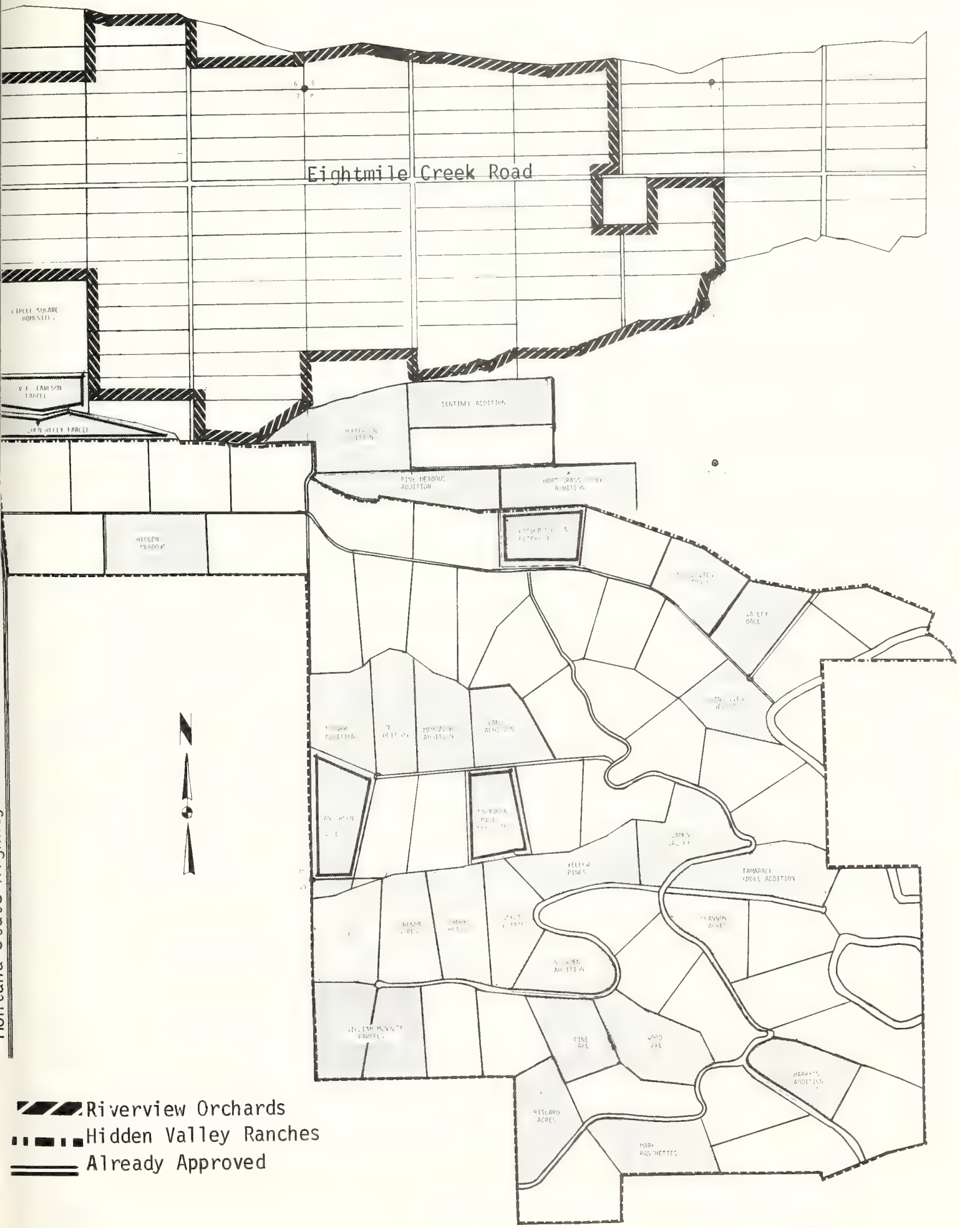
TOWNSHIP 10N -- RANGE 19W



▨	Portion of the [redacted]-Hensler Ranch presently surveyed into 10 and 20 acre parcels. This is the portion from which submittals have been received.
⬚	Remaining portion of the ranch.

LOCATION MAP
[redacted]-Hensler Ranch
Ravalli County

ference Map # 2



The minor subdivisions, unless indicated otherwise, are in Hidden Valley Ranches:

1. Scotts Bluff - The proposed subdivision will divide 24.43 acres into four lots. It is in Section 20, T10N, R19W, and is owned by E.J. Nicholson, Missoula, Montana.

2. Brenda Acres - This development will split 24.02 acres into four lots. It is in Section 20, T10N, R19W, and is owned by Nicholson.

3. Cheryl Heights - The proposed subdivision will divide 23.96 acres into four lots. It is in Section 20, T10N, R19W, and is owned by Nicholson.

4. Gayla Estates - This development will create four lots from a 23.76-acre parcel. It is in Section 20, T10N, R19W, and is owned by Nicholson.

5. Mark Ranchettes - The proposed subdivision will split 23.80 acres into four lots. It is in Section 20, T10N, R19W, and is owned by Nicholson.

6. Showen Addition - The development will subdivide 20.01 acres into four lots. It is in Section 20, T10N, R19W, and is owned by Bruce Showen, Helena, Montana, and Clyde Showen.

7. Harry's Addition - This subdivision will create four lots from 22 acres. It is in Section 21, T10N, R19W, and is owned by Harry Johnson, Missoula, Montana.

8. Tamarack Knoll Addition - This 21.67-acre tract will be split into four lots. It is in Sections 16, 17, 20 and 21, T10N, R19W, and is owned by Barbara Koessler and Mathewson Green, Missoula, Montana.

9. Hidden Meadow - The proposed development will subdivide 24.46 acres into five lots. It is in Section 18, T10N, R19W, and is owned by Green.

10. Dean's Addition - The subdivision proposes to split 20 acres into four lots. It is in Section 17, T10N, R19W, and is owned by Charles Martin, Missoula, Montana.

11. Kenneth Mamuzich Parcel - This 20.58-acre tract will be subdivided into four lots. It is in Section 17, T10N, R19W, and is owned by Kenneth Mamuzich, Conrad, Montana.

12. Jon's Addition - Thomas Walker, Missoula, Montana, proposes to divide 20.20 acres into four lots. The subdivision is in Section 17, T10N, R19W.

13. Turner Addition - The development will split 20.09 acres into four lots. It is in Section 17, T10N, R19W, and is owned by Dean Turner, Missoula, Montana.

14. Jefferson Addition - This subdivision will divide 39.03 acres into five lots. It is in Section 8, T10N, R19W, and is owned by James Stover, Missoula, Montana (located north of Hidden Valley Ranches).

15. Sentinel Addition - The proposed development will subdivide 20.64 acres into four lots. It is in Section 8, T10N, R19W, and is owned by Beryl Stover, Missoula, Montana (located north of Hidden Valley Ranches).

16. Willow View Tracts - The subdivision will split 20.03 acres into four lots. It is in Section 17, T10N, R19W, and is owned by Linda Hilbert, Missoula, Montana.

17. Grandview Heights - Billie Lou Eitel, Missoula, Montana, proposes to subdivide 18.37 acres into three lots. It is in Section 16, T10N, R19W.

18. Valley Dale - This proposed development will split 20.03 acres into four lots. It is in Section 16, T10N, R19W, and is owned by Martin Eitel, Missoula, Montana.

BACKGROUND

The DHES began a preliminary review of proposed subdivision activity on portions of the Hensler Ranch in February of 1978. The department had received an amended plat for a major subdivision, plus submittals for 18 minor subdivisions and three occasional sales, all totaling 1,292 acres. Prior to these submittals, the DHES had approved three occasional sales, a gift to a family member and an amended plat in the same area. Considering the past and proposed development activity, it was apparent that approximately 2,500 acres of the ranch were available for development. Only one major subdivision (Riverview Orchards) has been submitted for review in this draft EIS. Since this review began, however, another major subdivision in the immediate vicinity, but outside the 2,500-acre tract (Circle Square Homesites) has been submitted for preliminary comment. This subdivision, which divides 40 acres into 31 one-acre lots, borders Riverview Orchards on its north and east property lines. Circle Square has been approved by the Ravalli County Planning Board and is now pending before the county commissioners. Outside the Riverview Orchards subdivision, the remainder of the 2,500 tract has been divided into 20-plus acre parcels.

The Sanitation in Subdivisions Act defines a subdivision as a parcel containing less than 20 acres. Each of the 20-plus acre tracts submitted to the state has been divided into five-acre lots, thus constituting several minor subdivisions of five lots or less. Unlike major subdivisions, minor subdivisions are not subject to full-scale local review according to the Subdivision and Platting Act, which involves a public hearing, environmental assessment and public interest determination.

Riverview Orchards was also exempted from extensive local review. The 802-acre subdivision was submitted as an amended plat (dividing 10-acre parcels into five-acre lots) and, under rules adopted by the Ravalli County commissioners, amended plats are not subject to the full local review process in that county (Appendix A, Jan. 11, 1978, letter to DHES from Ravalli County commissioners). The land is now being advertised as 10-acre lots, as laid out in the original plat. However, the developers have not withdrawn the amended plat from review by the DHES.

Thus, none of the subdivisions in the 2,500-acre tract will be subject to full review at the local level.

The DHES received an unusually large number of letters from Florence area residents in response to the preliminary environmental review (PER), which was circulated in March. Based on intense citizen interest in the development, plus the potential impact of numerous subdivisions on a rural area, the DHES decided an EIS was in order.

About the time the DHES began work on a preliminary review of the Hensler Ranch subdivisions, the Florence-Carlton School District went to court in an effort to require the Ravalli County commissioners to make a public interest determination on the proposed minor subdivisions. The school district lost its case in state district court June 5, when Judge Jack Green ruled the proposed subdivisions are to be reviewed as minor subdivisions. Judge Green's decision has been appealed to the Montana Supreme Court by the school district.

In a related matter, Montana Attorney General Mike Greely has denied a request by the Ravalli County attorney for a decision on whether several minor subdivisions constitute a major impact. The attorney general denied the request on the grounds that litigation is pending in at least two cases where similar issues are involved. Attorney General Greely said when these two cases are resolved, he will issue an opinion on the Ravalli County request if it has not been answered satisfactorily in the pending litigation.

The DHES recognizes these subdivisions as minor subdivisions under state law. However, it is the position of the DHES that while the impacts of each of these subdivisions may be small, the combined impacts of the minor subdivisions will be great.

CURRENT ENVIRONMENTAL CONDITIONS

The 2,500-acre tract is in the foothill country between the Sapphire Mountains and the Bitterroot River bottomland.

The northern part of the property is open pasture and hay land. The southern border of this tilled area slopes down to Eightmile Creek and a smaller creek, which both flow west toward the river. The creek bottoms support a variety of trees, shrubs and grasses. Proceeding south, the land is higher, more rolling and supports scattered stands of pine and dryland grasses.

Most of the 2,500 acres has been grazed by livestock, with the more fertile portions used for growing alfalfa and other annual agricultural crops.

PHYSICAL ENVIRONMENT

Terrestrial and Aquatic Life and Habitats

A variety of wildlife inhabits the land planned for development. The types of wildlife include big game animals, non-game, and game and non-game birds.

According to a letter from Bill Thomas, Information Officer for the Department of Fish and Game in Missoula:

> This proposed subdivision lies to the west of the main deer and elk winter range in the foothills of the Sapphire Mountains, and there does not appear to be a big impact on wildlife habitat from the subdivision. Some whitetail deer habitat in the Bitterroot River and Eight Mile Creek bottoms could be affected depending on the location of the development. There appears to be little cover for game bird habitat in the

> vicinity of the proposed subdivision. Although direct impacts to wildlife and habitat may be small, the potential for indirect impacts does exist. Even though the main winter range lies to the east, there is a potential impact of dogs associated with the subdivision running or harassing game animals.

Wes Woodgerd, a resident of Stevensville/Florence area and former director of the Department of Fish and Game, made the following comments in a letter to the DHES:

> The proposal would have a major impact on the local whitetail deer population. The area proposed for subdivision (Hidden Valley) now serves as a refuge for the local whitetail that are displaced from the river bottom during the duck hunting season. It also serves as a corridor to the public land in the foothills of the Sapphire Mountains. The deer would be denied this place of refuge and passage under a subdivision situation.
>
> Unless the area were covenanted to prevent dogs from running loose the surrounding areas and both terrestrial and aquatic wildlife would be impacted by dogs from this subdivision. Dogs molesting wildlife is a serious problem now and would be intensified by further subdivision without dog control.

Both Woodgerd and Thomas expressed concern about domestic animals harassing wildlife. The protective covenants for Hidden Valley Ranches state:

> Only normal family pets, and cattle, sheep and horses may be kept on the premises. Such animals shall be confined within the property of their owners and shall not be permitted to become a nuisance or annoyance to neighbors. The number of animals shall be limited to preclude overgrazing of the land.

The DHES did not receive any protective covenants from Riverview Orchards or the occasional sales not in Hidden Valley Ranches, thus there is no information concerning the disposition of domestic animals in those developments.

In addition to deer, some elk have been seen along the eastern border of the property, and during the summer of 1974 a cow moose and her calf were reported to have roamed the river bottomland and ranch property until fall.

Other mammals observed on or near the property were black bear, coyote, longtail weasel, striped skunk, badger, yellow bellied marmot, ground squirrel, pocket gopher, porcupine, wood rat, deer, mouse and meadow voles.[1]

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[1] Hensler Subdivision Vegetation and Wildlife, Gordon Scaggs, University of Montana, May 29, 1978.

During the spring and summer of 1975 a bird species list was compiled along with nesting sites.[2] The ranch supports a wide variety of bird families and species because of the diverse habitat components with which they are associated. Habitat includes the grassland areas favored by the horned lark, vesper sparrows, long billed curlew, and Western Meadowlark for nesting and feeding. The draws, with pine and cottonwood, attract the warblers, woodpeckers, bluebirds, nuthatches and birds of prey for nesting and many for feeding. Game birds such as Hungarian partridge, pheasant, various species of ducks and geese (Canada and Snow) also inhabit the area.

The ducks are fairly restricted to the Bitterroot irrigation canal and ponds where they may share areas with the red-wing and yellow headed blackbirds. The geese use the pastures during the fall and spring.

Eightmile Creek is about 12 miles long with its headwaters in the Sapphire Mountains. The upper-reaches of the stream flow through timber and brush and are impounded by numerous beaver dams. The lower reaches usually dry up due to irrigation. The beaver ponds reportedly are good early-season fishing for small cutthroat trout.

Water Quality, Quantity and Distribution

The proposed subdivisions all would have individual wells. The DHES had Maxwell K. Botz, P.E., hydrogeologist-engineer of Western Technology and Engineering, Inc. (WESTECH), Helena, Montana, evaluate the existing hydrological information to determine if available water resources would meet the requirements of the Sanitation in Subdivisions Act.

WESTECH's report included the following information:

> Throughout the proposed subdivisions, Quaternary deposits of both high and low level terraces cover the underlying Tertiary sedimentary rocks (Reference map #3), and are a significant factor in the hydrogeology of the area. These terrace deposits consist of stream-transported detritus from the Sapphire Mountains and reworked Tertiary sedimentary strata...
>
> Available geological information on this area is not detailed and the nature and thickness of Quaternary and Tertiary strata are poorly known. To provide further information on subsurface conditions, all available water well data for the area were obtained.
>
> Appropriation forms for a total of 24 wells and 1 spring on or near the property were available from the Department of Natural Resources and Conservation. Wells ranged in depth from 39 to 390 feet and yields varied from 8 to 400 gallons per minute (gpm) (with the exception of one well yielding ½ gpm). Two wells are developed for irrigation purposes with yields of 240 and 400 gpm. These logs show that groundwater along the western edge of the property and at scattered localities in the subdivisions can be obtained in quantities sufficient for domestic

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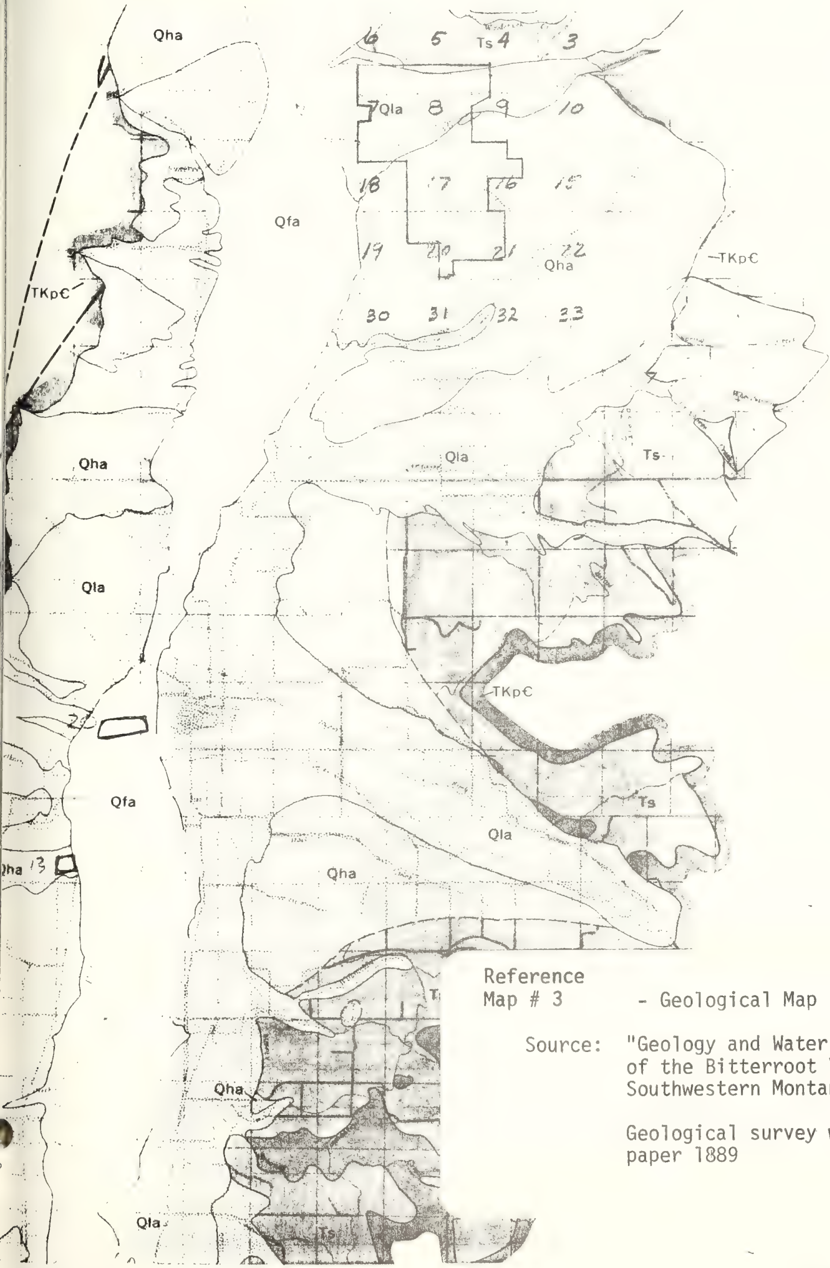
[2] Bird Species Observation and Nesting Location on the Eightmile Ranch (March-May), Gordon Scaggs, University of Montana, 1975.

GEOLOGY



Reference Map # 3 - Geological Map

Source: "Geology and Water Resources of the Bitterroot Valley, Southwestern Montana"

Geological survey water supply paper 1889

purposes (8 gpm for 2 hours) and, in some areas, for limited irrigation. There are, however, only a few wells located within the subdivisions, particularly the entire eastern and southern portions of the subdivions in Sections 8, 9, 16, 17, 20 and 21. There are no reports of dry holes or holes with insufficient yields in the area, and there are no requirements to report such holes.

It should be noted that some wells were drilled relatively deep to obtain adequate water. For example,...(one well)...was drilled to a depth of 230 feet to yield 12 gpm after 1 hour of pumping and had a pumping water level 220 feet below the ground surface. Similarly...(another well)...was drilled to a depth of 255 feet to obtain 15 gpm with a pumping water level at 240 feet.

It is difficult to distinguish Quaternary and Tertiary strata based on the well logs; however, many of the deeper wells have encountered alternating fine and coarse-grained layers that are typical of Tertiary sediment in western Montana. Such Tertiary deposits typically have wide variations in lithology over short distances; thus, aquifers may be encountered at various depths and wells may have a wide range of yields.

Based on water table contour data furnished in USGS Water Supply Paper 1889, the direction of groundwater movement is from the mountains and terraces toward the river with a relatively steep hydraulic gradient in the vicinity of the proposed subdivisions. Data, however, for water table contours does not extend into the eastern portion of the subdivisions. The overall configuration of the groundwater table beneath the subdivisions is not well known and available evidence suggests that in order to reach the water table, deep holes into the underlying Tertiary sedimentary rocks will be necessary in portions of the subdivisions.

The major question to be answered is the adequacy of water for the proposed 415 parcels of land. The total groundwater demand of these parcels, if they were all developed into single family dwellings, would be about 40 gpm, or 0.3 cubic feet per second (cfs). Based on available hydrogeological data and well logs, along with my general knowledge of Quaternary and Tertiary sedimentary deposits in western Montana, it is my opinion that there would be adequate groundwater in underlying aquifers to furnish the proposed number of parcels in this subdivision. This is a large development, however, and there are very few wells drilled on the property, thus, hydrogeological conditions are poorly known and there is no positive assurance that adequate groundwater is available on all parts of the subdivision.

Near the western edge of the property at lower elevations, there appears to be little problem in obtaining sufficient groundwater at reasonable drilling depths. Deeper wells into Tertiary sediments probably will be required in the higher parts of the subdivision and water yields are less certain. Generally, however, if wells are drilled deep enough (with commensurate high cost), an aquifer with adequate water will be encountered in Tertiary sediments.

> Your staff also requested an assessment of the availability of groundwater if this property were further subdivided into one-acre parcels. The impact of 2300 (figure readjusted to 2,500) one-acre parcels on this hillside property, each with individual wells and septic tanks, is somewhat overwhelming and difficult to assess. The groundwater resources are too poorly understood to make any realistic appraisal of the effects of a large development on the groundwater system. Similarly, percolation of effluent in the ground from 2300 (2,500) septic tank drainfields creates a large addition of water to the shallow groundwater system. Based on standard residential water use, a water supply of 1022 gpm (2.3 cfs) is needed and there would be a sewage effluent flow of about 511 gpm (1.1 cfs). The existing groundwater system possibly could accommodate such activity, however, severe problems in groundwater depletion, well pollution, and hillslope stability due to increased moisture in fine-grained sediments could occur. A meaningful appraisal of this development can be made only after substantial further investigation of the areas water resources, including test drilling of wells. I do not feel I can properly assess such a development based on existing data.

Three wells in or near the subdivision have been sampled for water quality The three wells range in depth from 43.8 feet to 60 feet and yield waters of excellent quality. One well exceeds the Public Health Service recommended standard for iron (2.1 mg/l versus the recommended standard of 0.3 mg/l), but waters high in iron are not harmful to human health as far as is known

Water Impoundments

South of Antrim's Point two drainages converge and run south under the Eastside Highway, through the bottomland, into the Bitterroot River. The creeks are in Sections 17, 19 and 20, and drain an area of about 1900 acres east of Antrim's Point.

A total of eight dams, four up each drainage, have been constructed. Some of the small lakes are next to the road running east and west past the point. Local residents have questioned the safety of the dams. Concerns included the adequacy of construction, the placement of the "draw-down tubes" (which enables water to flow safely out before going over the top of the dam) in relation to the top of the dams, the apparent absence of spillways and the possibility of a mass failure of the dams due to faulty construction.

The Bitterroot Irrigation District Canal flows through Sections 16 and 21 and crosses these two drainages at the upper reaches. The canal has an initial carrying capacity of 400 cfs and would tax the ability of the dams to hold water should the canal ever break.

The State Department of Natural Resources and Conservation (DNR) inspected the dams and is preparing a report on its findings.

Storm Drainage

At the proposed lot densities, roughly one percent of lot areas will be occupied by houses, driveways and other impermeable surfaces. This should not cause a significant increase in the total amount of runoff from the proposed development area. Some re-routing of storm flows will occur along roadways, but the major drainage patterns will be utilized.

Portions of the proposed development area will drain into the two tributaries discussed in the water impoundments section. When the DNR report on the dam inspections is complete, the ability of the impoundments to accommodate storm flows can be better addressed. However, assuming the dams will accommodate normal storm flows, less storm water may leave the proposed development area than before the dams were constructed.

Average rainfall at the Stevensville reporting station is 13.33 inches. From U.S. Geological Survey (USGS) topography maps, the drainages within the subdivisions drain roughly 30.5 square miles. The 25 year, 24 hour duration rainfall is 3.0 inches in the Sapphire Mountains above the development area and is 2.2 inches in the area of the development. The ratio of water that runs off the watershed to the total amount precipated on it was assumed to be 0.20 and 0.75 for the wooded areas and non-wooded areas, respectively. The USGS topography maps indicate that approximately 85-90 percent of storm flows from the 30.5 square miles drain into Eight Mile Creek. This would be approximately 415 cfs. Because no proposal has been made to alter Eight Mile Creek and because of the proposed housing density, this storm flow should pose no runoff problems which do not presently exist.

The runoff from a 25 year storm into the tributaries where dams have been constructed would be approximately 60 cfs. Again, concern has been expressed by local residents over the construction of these dams and the ability of the dams to handle storm flows is unknown at this time.

According to the Water Quality Inventory and Management Plan published by the DHES in 1976, the water quality data collected from the mouth of the Bitterroot River did not indicate any violations of water quality standards. Some degradation was indicated by coliform and nitrate counts, however. The only obvious sources of degradation from the development area would be temporary problems resulting from road construction and slug flows should one of the dams fail.

Geology and Soil Quality Stability and Moisture

Geology

A thick blanket of Tertiary and Quaternary sediments cover the underlying bedrock that is either Cretaceous-Tertiary igneous rocks or Precambrian Belt sediments. The unconsolidated to semiconsolidated Tertiary sediments are gravels, sands and muds that were derived from peripheral bedrock by weathering and erosive processes. Within the Tertiary deposits, materials of different texture interfinger and intergrade both laterally and vertically, often over short distances, due to changes in either the type of geometry of the depositional media. These Tertiary strata are probably several hundred feet to possibly greater than 1,000 feet thick.

Interbedded volcanic ash lens may extend into the area, possibly buried under colluvial and other sediments. These volcanic ash units sporadically outcrop at elevations between 3,500 and 4,100 feet. The closest outcrop lies 4 miles south of the proposed subdivisions.

Quaternary deposits mantle the Tertiary sediments along the Eight Mile Creek floodplain which passes through this subdivision. These deposits are moderately well-to well-sorted stream sediments derived from the Sapphire Range; predominantly silts, sands and gravels.

Soils

Soils that have developed on the Riverview Orchards subdivision have been classed as Lolo cobbly loam and Lolo gravelly loam by the Soil Conservation Service (SCS). These soils have developed in Quatenary alluvium. The upper 18 inches consists of a gravelly loam. Sand, gravel and cobbles are generally found below this depth. One hundred fifty-four ten-foot test holes were dug on the subdivision and verify this description. One percolation test was run on each lot.

All but two of the percolation rates varied between 2 and 41 minutes per inch. The lots with percolation rates near 2 minutes per inch did not show any signs of groundwater in the ten feet deep test holes. Two of the percolation rates were in excess of what is acceptable for the installation of a conventional septic tank and drainfield. These two lots must be retested and will be rejected if they are found not to be acceptable.

Soils that have developed on the Hidden Valley Ranches property developed in Tertiary sediments. The major soils found on this property have been classed by the SCS as Riverside gravelly and cobbly loams, Burntfork loam, Wemple loam-Ravalli loam complex, Riverside fine sandy loam and Lolo gravelly loam. Minor areas of other soils also have developed on the property.

Riverside gravelly and cobbly have a gravelly sandy loam topsoil with sand and cobbles generally found below 18 inches. Burntfork loam has a loamy topsoil with cobblestone increasing with depth. Wemple fine sandy loam has some volcanic ash content at greater depths. These soils would not be used for drainfield sites due to slope. Riverside cobbly sand loam has cobbly sandy loam topsoil grading to loose sand and gravel. The upper 18 inches of Lolo gravelly loam consists of a gravelly loam grading to sand, gravel and cobbles below.

Seventy-one soil profile holes have so far been dug on the property and generally verify the general soil descriptions. Plastic clay lenses were found in several of the profiles. Seventy-one percolation tests were made all within the acceptable range.

Every lot in Hidden Valley Ranches has a suitable drainfield site and replacement area that does not have slopes that exceed 15 percent.

Proper placement of the drainfields can be assured since Ravalli County has a septic tank permit program. The sewage disposal systems would be inspected before they were covered and the permit approved by the Ravalli County sanitarian.

Vegetation

The 2,500-acre tract of land being reviewed supports a variety of vegetation.

The northwestern part of the property is mostly irrigated farmland, with the predominant crop being alfalfa. Some of the areas bordering the fields have been taken over by spotted knapweed.

The tillable land in the northeastern part of the tract is also primarily in alfalfa. The Eight Mile Creek drainage and another unnamed creek are also in this area and the predominant species in these bottomlands is black cottonwood.

Proceeding south out of the creek bottoms to higher ground, the most dominant species changes to spotted knapweed, bluebunch wheatgrass and open stands of ponderosa pine.

Along the southern boundary of the property the predominant species include sagebrush, bluebunch wheatgrass, ponderosa pine and in two streambeds, black cottonwood.

Development of this land will affect the vegetation. Home and road building often lead to soil compaction, erosion and the depositing of infertile subsurface soils on vegetation. Construction in forested areas normally necessitates the felling of trees. The protective covenants for the Hidden Valley Ranches land addresses the matter of tree cutting by saying:

> Section 7. Timber: No timber cutting shall be permitted that materially reduces the aesthetic or scenic value for adjacent tracts. This provision is not intended to preclude clearing of a residential site or providing access thereto.

The loss of natural habitat will reduce cover and forage for wildlife and in the case of domestic livestock, it's possible for over-grazing to occur.

It is likely that many people will want to have lawns and landscape with domestic vegetation. The result will be a change in vegetation, but the change in some cases may benefit some types of wildlife, such as the planting of trees and shrubs that will provide food and cover.

Aesthetics

A major reason for recent, unprecedented growth in the Bitterroot Valley undoubtedly lies in the area's scenic attractions. Located between two majestic mountain ranges, the valley stretches out along the Bitterroot River--the lifeline for the valley's agricultural land base.

To the west, the peaks of the Bitterroot Range provide a jagged wall that runs the length of the valley. At the north end of the valley, near Florence, Lolo Peak stands at 9,075 feet. Trapper Peak, at the south end, stands at 10,157 feet. To the east lie the Sapphire Mountains, with peaks in the 7,000 to 8,000-feet range.

Several years ago, the Bitterroot Valley was regarded primarily as an agricultural belt. The land raised cattle and sheep, hay and grain crops and some fruit crops. Over the past few years, however, residential development and subdivision activity have been closing in on the agricultural land base.

In a letter to the DHES, the attorney for the owners of the minor subdivisions said a homeowners' association has been created and protective covenants attached to the property "to insure a desirable rural development." The covenants, whose initial term expires in five years, restricts lot sizes to five acres. They

further prohibit placement of trailers or mobile homes on the property. While power lines in Hidden Valley would be underground, according to the electric cooperative that services the area, the main power line for Riverview Orchards would be above ground, with underground service connections.

There can be no doubt that development of the Hensler Ranch subdivisions would significantly alter the landscape. If the properties are fully developed, there will be hundreds of homes built in an area where one ranch has stood for years.

Air Quality

Based on the subdivisions being reviewed by the Department and the possible subdivision of the remainder of the 20-acre lots in Hidden Valley Ranches into five-acre parcels, the Air Quality Bureau (AQB), DHES, has projected that dust from unsurfaced dirt roads will violate federal primary and secondary standards for total suspended particulate (TSP).

The federal primary standard is 75 micrograms/cubic meter (u/m^3) annual geometric mean and the secondary standard is 60 u/m^3.

According to conservative figures used by the AQB, if the roads remain unsurfaced and dust is not suppressed, at full development the average emission density will be, at a minimum, 281 tons/square mile/year (T/sq. mi./Y), and the maximum will be 484 T/sq. mi./Y. The federal primary standard of 75 u/m^3 equates to about 200 T/sq. mi./Y. Thus, there will be violations.

The AQB suggests the following ways to mitigate anticipated violations of TSP:

1. Pave the roads with asphalt or concrete.

2. Water the roads.

3. Oil the roads.

4. Use chemical dust suppressants on the roads.

5. Reduce the speed of vehicles on the roads.

6. Reduce the number of vehicles traveling on the roads.

7. Locate unpaved roads as near as possible to paved roads.

The DHES will require that dust suppression measures be used to control road dust by administrative order pursuant to ARM 16-2.14 (1)-S1440.

Since the DHES did not receive protective covenants for Riverview Orchards or the tracts outside of Hidden Valley Ranches, it is not known if there are any plans or requirements for road maintenance or surfacing. The covenants for the

subdivisions in Hidden Valley Ranches say this about road maintenance:

> Section 5. Road Maintenance Charges- In addition to other assessments provided for herein, the Association shall levy a special assessment each year for the purpose of paying for road maintenance charges at their actual costs. This assessment shall be levied at a uniform rate for all tracts adjoining the non-dedicated road easements.

In a March 18, 1978, letter to the DHES, Dennis Lind, attorney for Hidden Valley Ranches said:

> The homeowner's association is responsible for road maintenance, which may include dust oiling to insure air quality, and has authority to impose assessments for the purpose of providing adequate services to insure the health, safety and welfare of the residents...

Unique, Endangered, Fragile or Limited Environmental Resources

The development of the former ranch will change the aesthetics of the area and to a great degree the native vegetation. The rural setting will become more suburban in appearance and much of the native vegetation will be either eliminated or replaced by domestic plant varieties.

The elimination of large areas of native vegetation will probably affect the ranging patterns of whitetail deer and many of the smaller game and non-game animals and birds.

There are no known endangered species in the area.

Demands on Environmental Resources of Land, Water, Air and Energy

The proposed developments would create demands on land, and possibly on air and water resources. Subdivision of the land would permanently alter the landscape. If roads are not properly maintained and land is further subdivided into one-acre lots, both air and water resources would be seriously affected. However, since potential problems with air and water have been identified, it is possible to avoid such problems.

The amount of energy used by homeowners in the subdivisions will not, by itself, affect the total amount of energy available to the region or state. However, energy may,in the near future,become appreciably more expensive. This is particularly true for petroleum-based fuels, such as gasoline, heating oil and propane.

Historical and Archaeological Sites

Three state historic sites are situated near the proposed subdivisions; none lies on the property.

An old mining district -- the Eight Mile District -- lies east of Florence in the Lolo National Forest. The district marks the site of several rich placer mines, including the White Cloud and the Cleveland, which were in production from 1866 to 1910.

Two early homesteads are also located in the Florence area. A house, barn and two sheds of hand-hewn logs are all that remain of the Mayhew Homestead, an early dry-land wheat farm homesteaded around the turn of the century. It's unique, two-story "saltbox" style is said to have been the finest house in the area. The homestead is five miles northeast of Florence on Woodchuck Creek.

The Wagner Homestead, just a mile north of Florence, consists of six log structures built by three brothers who emigrated from Germany between 1867 and 1875. These buildings are distinguished by their German craftsmanship. One of the structures has been given to the Stevensville Historical Society and moved to the Fort Owen State Monument.

Dee Taylor, anthropology professor at the University of Montana, reports there is one archaeological site in the area; however, it does not lie on the property proposed for development. Taylor said a general lack of other data for this area "probably reflects the fact that a cultural resources inventory has never been done there."

"Certainly the potential impact on historical and archaeological sites is not minor," he added, "rather it is unknown at present."

Taylor recommended a cultural resources inventory of the proposed development be conducted "prior to modification of land surfaces." Such an inventory would be left to the discretion of the developers.

HUMAN ENVIRONMENT

Social and Cultural Characteristics

Florence is a youthful and rural community. According to a survey[1] conducted for the DHES by Raymond L. Gold, director of the University of Montana Institute for Social Research, the average age of the area's residents is 26. The population is also young in terms of length of residence: More than half the residents have lived in the area for five years or less.

Survey results indicate that young families have chosen to settle in Florence for a reason, and the reason is the area's rural character. A clear majority (76 percent) of those surveyed said they moved to the area primarily because of its rural character. Furthermore, 71 percent of the respondents said their continued residence in the Florence area hinges on the maintenance of that rural character. (Forty percent said they would consider moving from the area if an anticipated 200 to 300 families were to move in as part of the proposed Hensler Ranch development within the next five years.)

Because of their preference for a rural environment, Florence area residents are highly sensitive to growth patterns in their community. Though residents do not advocate a "no growth" policy, they are deeply concerned about the kind and the rate of growth in their community. According to the survey, the residents are nearly unanimous (91 percent) in their opinion that rapid growth is not good and should not be encouraged. On the other hand, 88 percent believe some growth is acceptable as long as it proceeds slowly and orderly.

The same general opinions are reflected in the residents' specific attitudes toward the proposed Hensler Ranch subdivision. Only 10 percent are unconditionally opposed to the subdivision. However, a majority (59 percent) say the development is unacceptable as proposed. Most agree that various modifications would make the project acceptable. Among the modifications they favor, in varying degrees, are: a smaller development; a slower rate of development; relief from anticipated increases in the costs of social services; assurance of the quality of housing and overall development; enforcement of a 10-acre minimum on lot size, and some kind of assurance that the subdivision would not have a negative impact on their quality of life.

To summarize the overall reaction of the residents to the proposed subdivision, a small minority welcome it, compared with the majority of respondents, who view it as a threat to their way of life. It should be noted that residents do not view the subdivision as an isolated development that will single-handedly change their way of life. Rather, they view it as part of a trend toward rapid and unplanned growth in their area and an erosion of the rural character of their community. In his survey summary, Gold states the irony of this trend: "If existing patterns of development continue unabated, the principal attraction of the Florence area will be displaced by a different, more urbanized way of life."

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[1] The "Survey of Anticipated Social Impacts of the Development of the Hensler and Associated Properties" was conducted in late April and May of 1978. Results and a summary of the survey were submitted to the DHES June 2, 1978. The Institute for Social Research, University of Montana, utilized a probability (or random) sampling method in conducting the survey, which represents about 10 percent of the households in the study area.

Another community characteristic that is changing, according to at least one native of the Bitterroot Valley, is a sense of civic or community involvement. Bob Krout, who serves as a volunteer on both the Florence "quick response (medical) unit" and the Florence fire department, says one characteristic is common among new residents, and that is an unwillingness to become involved in community activities. "Most new residents work in Missoula and live here to get away from the hassle," he said recently in a phone conversation. "They don't want to become involved in the community. They just want to be left alone."

Distribution and Density of Population and Housing

Florence is a rural community with an estimated population of 2,300. According to the Gold survey, its residents are young and they're there by choice. As mentioned earlier, the majority of residents are employed outside the community.

About 28 percent of the population are children between the ages of 1 and 5; 10 percent fall between the ages of 6 and 18; 54 percent are between 19 and 49 years old, and 8 percent are 50 years or older. Although Florence consists largely of younger families, it has some attraction as a retirement community also. More than half of the people in the older age category have lived in the area less than five years.

The people of Florence describe their community as rural. Outlying ranches and small farms dot the area surrounding Florence, along with clusters of single-family residences and lots. The population of Florence itself is concentrated just west of the post office on Highway 93 and adjacent to the Florence-Carlton School. Recent development has produced scattered lots and subdivisions of various sizes, which are becoming more and more evident throughout this portion of the Bitterroot Valley.

Potential impacts of the Hensler Ranch development are based on an estimate of between 200 and 300 families moving into the area over the next five years. (This is the estimate used in the Gold survey.) As of 1975, the mean size of a Montana household was 2.93.[2] Using this statistic, the proposed subdivisions would raise the population of Florence by anywhere from 25 to 40 percent within five years. (The statistic could be conservative for this community since Florence is inhabited largely by younger people of a child-bearing age.) If the proposed subdivisions should become fully developed, there would be hundreds of families living in a area that was once one ranch. A population increase of this magnitude is bound to alter the way of life in a community that, up until recently, has functioned on a first-name basis.

Quantity and Distribution of Employment and Income

Farming, ranching, small business and the forest products industry account for most of the employment in the Florence area, according to the Gold survey.

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[2] U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 108, "Household Money Income in 1975, by Housing, Tenure and Residence, for the United States, Regions, Divisions, and States (Spring 1976 Survey of Income and Education)," U.S. Government Printing Office, Washington, D.C., 1977.

The majority of residents, however, are employed outside the area. Many Florence residents work 20 miles up the road in Missoula, and most of the people surveyed said their continued residence in Florence is not dependent on rural employment opportunities. In short, employment is not among the attractions that draw people to the Florence area. However, the ability of Florence residents to combine a rural lifestyle with a steady job outside the community does appear to be a drawing card for the area.

Nearly all (86 percent) of the households covered by the survey have at least one person salaried or self-employed. Forty percent have two persons salaried or self-employed.

Average annual family income in the Florence area is $17,516, according to the survey. Twenty percent of those surveyed have annual family income of less than $10,000. The annual family incomes of 36 percent fall between $10,000 and $17,000; 37 percent fall between $17,000 and $35,000, and 7 percent exceed $35,000.

The largest job category among those surveyed is the clerical/technical field. The second largest category is skilled manual. Other categories, in descending order, are: administrators, small business owners and semi-professionals; semi-skilled; medium-sized business owners and unskilled workers.

The survey concludes that income levels and diversity of employment are greater in the Florence area than they are in comparable, rural Montana communities. Gold attributes this disparity to the area's proximity to Missoula and to the number of residents working outside the area in which they live.

Because jobs are scarce in Florence, it is anticipated that new residents would be forced to seek employment outside the area. For that reason, it is likely the proposed development would at least initially be a bedroom community for Missoula. Demands for more convenient local services would probably create more employment opportunities in the Florence area. Even though there is a general apprehension among area residents that the job situation would become a problem if there were a sudden and substantial influx of people into the area, the Gold survey shows that 60 percent of the respondents feel the proposed development would have little or no impact on their income and/or employment.

Taxes

It is not possible to accurately predict tax revenues with any degree of certainty since no one knows what the market value of the lots will be until they are sold; nor is it possible to predict what future mill levies will be. Yet it is possible to make some assumptions and discuss possible situations that might occur regarding local tax revenues.

According to the Ravalli County Appraisal Office, agricultural land is taxed much less than suburban tracts. This is true throughout the state. Consequently, when a parcel of agricultural land is subdivided and sold, the tax income increases appreciably. Most subdivided properties eventually have homes and associated buildings built, thus not only is local government able to tax the land but it also taxes the buildings.

The taxes on homes are in proportion to the value of each home. Thus, the taxes on a $20,000 home will be less than the taxes on an $80,000 home.

The lots and eventual homes in the Hensler subdivisions will generate appreciably more taxes than those derived from the agricultural land. However, the subdivisions will generate certain costs--such as more pupils for local schools, expanded fire protection, possibly an increase in law enforcement, road improvements, etc.--which were not associated with the agricultural land and will have to be paid through taxes.

The problem of new tax revenues vs. increased local services, then, reduces to the question of whether the increase in revenues will cover the costs of the increased services.

Taxes on subdivided land vary according to the dwellings on the property. The 20-acre tracts in Hidden Valley Ranches have restrictive covenants that prohibit mobile homes and trailers and specify that homes must either be no smaller than 900 square feet for a one-story home or no smaller than 700 square feet for the ground floor of a two-story home. Considering current construction costs, homes built according to minimum specifications should cost from about $35,000 to $40,000.

Since the DHES did not receive protective covenants for the occasional sales outside of Hidden Valley Ranches or Riverview Orchards, it appears there are few if any restrictions on the type of dwellings or associated buildings.

If mobile homes are placed on lots the amount of tax income is normally less than permanently constructed homes, due to the value of the mobile homes. An average sized mobile home (14' x 66') sells for between $12,000 and $20,000. Additionally, if the mobile home is not on a permanent foundation it is taxed as personal property and depreciates each year, thus gradually lowering the taxes the owner pays on the trailer home.

Hypothetically, if each of the 154 lots in Riverview Orchards had a mobile home on it, and none of them were on permanent foundations, the total tax revenues would decrease yearly. Conversely, if each lot has a permanently constructed home on it, the tax income, over a period of time, would likely increase.

Thus, the types of developments which occur on the former Hensler Ranch property and in the area adjacent to the property will be determining factors in the amount of tax income available to pay for local taxes.

If growth is well planned and spread over a long period of time, tax income (depending on the type of development) should be able to keep pace with the increased need for local services. However, if a community experiences high density, rapid development, and it's the type that generates the least amount of tax revenues, then community services such as schools, law enforcement, fire protection and so on, suffer the consequences of being unable to financially meet the bludgeoning demand.

In terms of the Hensler Subdivisions, both extreme possibilities exist. It's possible to have rapid, dense development with an extremely low tax base or gradually planned development with the highest possible amount of tax income. The third possibility would be a middle ground somewhere in between. The controlling factor in all three possibilities rests with local citizens and officials and how they plan the development of the area.

Demands on Government Services

The Department has received numerous letters from Florence area residents who are concerned about the potential impacts of the proposed subdivisions on their community. Most of the letters address the impacts of the development on various social and government services and the anticipated rise in taxes to cover these impacts. Schools emerge as the single-most important area of concern.

Many residents have expressed concern, either in their letters or through their responses to the Gold survey, that school facilities are already overcrowded and underfunded. Many also fear an increase in school taxes will inevitably follow an increase in student enrollment.

One of the earliest critics of the development was Dr. William Willavize, superintendent of the Florence-Carlton (elementary and secondary) Schools.

In a report to the Department, Dr. Willavize said development of the Hensler Ranch subdivisions has the potential of doubling the Florence-Carlton School population within a "relatively short time." (Dr. Willavize based his report on a projected figure of 1.7 students per household--a figure he obtained from the Ravalli County Planning office. In a letter to the Department, Planning Board Chairman Earle Wright challenged this figure. According to his own calculations, based on tax-paying homesites, Wright came up with a figure of .5 children per home. Dr. Willavize came in later with yet another figure of 1.6 school-age children per household based on statistics he obtained from an existing subdivision about two miles north of Florence.)

In September of 1977, the voters of the school district passed a high school and elementary bond issue for construction of additional space to provide classrooms for the next five to eight years. In his report, Dr. Willavize stated: "With the knowledge we now have of major and minor subdivisions planned in the District, we feel that the additional space may be near capacity when opened."

Dr. Willavize added that the school presently has an inadequate bonding capacity for the anticipated influx of students. "While it is true that additional homes will bring in additional bonding capacity and taxable valuation, it is also true that this increase will not cover the cost of school facilities for the students the houses will bring," he said.

"Without adequate financial resources," he added, "it is apparent that double-shifting will occur and that all students will have a reduced quality of education."

Dr. Willavize recommended that no more than 20 homes be constructed each

year on the ranch, and that if the number exceeds 20, "the developers shall provide financial assistance to the District in the form of cash payment or land for school construction."

Like the other residents of the area, Dr. Willavize said he is not opposed to growth, but he is opposed to unplanned, haphazard growth. His major concern is that the school is not adequately funded to provide classroom space and operational monies for the children it is serving. "We are not anti-development," he said. "We are pro-children."

Another school that stands to be impacted by the development is the Lone Rock School in Stevensville. The school currently serves 170 students in grades kindergarten through eight, and according to school board chairman Jim Kaiser, has a capacity of 200. "The school faces the reality of normal growth and with this, the need to build," Kaiser said in a letter to the Department. "We do not expect the (Hensler Ranch) development will be stopped, but we feel there is a need for a slowdown, careful planning and some form of impact aid."

The Department also received a letter from Carl Martin, chief of the all-volunteer Florence Fire Department. Martin believes the fire department will be able to serve the proposed major subdivision--Riverview Orchards--because it lies near a good road. However, he said his crew would not be able to get their trucks into the minor subdivisions during the winter months because the roads would not be maintained by the county. He also pointed out that no water supply would be available to the trucks within the subdivisions. He said that approval of all the subdivisions would have a major impact on the fire department's budget and that the department would need another building unit to serve the area.

Minor subdivisions also lie in the Three Mile Fire Company district near Stevensville, according to Dave Brandon, secretary-treasurer of the company. In a letter to the DHES, Brandon said there is not a suitable water supply near the subdivisions for use by his crew. He suggested a well or other suitable supply of water be made available by the developers. He also said purchasers of property in this area should be informed about which fire district they reside in, how and where to report fires and what kind of response time to expect. (Brandon said response time of the Three Mile Company exceeds 30 minutes.)

In response to the department's PER, Dennis Lind, attorney for several of the developers and current property owners said "a buyers information statement" is required on all parcels indicating fire response time. He added that individual owners have indicated a willingness to allow fire truck hookups to private wells.

Brandon closed his letter by stating the impact of the development would be "devastating" to his budget. He added: "Furthermore, if this development, and the many others proposed in our district, realizes its full potential for growth, it will necessitate additional fire trucks, companies and expansion of the all-volunteer fire fighter force in this district."

According to Ravalli County Sheriff Dale Dye, there are currently two officers assigned to handle law enforcement problems in the Florence area. A third officer roves throughout the county and works occasionally in Florence.

Sheriff Dye said that population growth generally tends to increase pressure on the public services system and that he wouldn't have trouble finding work for any additional officers. He added, however, that "the present staff is adequate for handling the major problems that are brought to the attention of my department." He said any additional manpower would be used for patrol and investigative work.

It is the sheriff's opinion that subdivisions create law enforcement problems when buyers over-extend themselves financially. Certain terms attract people who can't really afford the price of buying and maintaining a residence, according to Dye. He describes the resulting problems as "inadequate fences, lack of proper control of livestock, dogs and kids, marital problems, theft problems, etc."

For a discussion of impacts on area roads and traffic, see section on Transportation Networks and Traffic Flows.

Human Health

Like most rural communities, Florence depends, to a large extent, on local volunteers to provide needed human services, such as fire protection and emergency medical aid.

A 12-member team makes up Florence's "quick response (medical) unit." The team, the only one of its kind in Ravalli County, serves the northern end of the county, covering roughly the same jurisdiction as the fire department (about 107 square miles).

Members of the team have been trained as emergency medical technicians. Their job is to lend first aid and stabilize the victim until an ambulance or other professional help arrives. According to one member of the team, Bob Krout, who also serves the volunteer fire department, the quick response unit has responded to 32 calls since December 1977, when team members completed their training.

Krout reports that outside of one physician in Stevensville, area residents rely on Missoula and Hamilton for medical services, personnel and facilities. Residents of the northern end of the county generally travel to Missoula for these services, and residents living in the southern portion of the county travel to Hamilton, which has a hospital.

Krout said there is one ambulance in Stevensville, which is operated through the sheriff's office in Hamilton. The ambulance is operated by volunteers on an on-call basis. He added, however, that the Missoula ambulance service is used more often in Ravalli County than the Stevensville ambulance.

It is Krout's opinion that development of the Hensler Ranch subdivisions would impose a significant hardship on the quick response unit, as well as on other social and human services. He believes the development could triple the size of the Florence community if the property is fully developed. Although it is anticipated that most of the new residents would use Missoula medical services, there would still be an increased need for the kind of emergency aid provided by the quick response unit.

Another human health consideration is proper solid waste disposal. Currently, there are two approved solid waste disposal sites in Ravalli County. The disposal site at Darby is operated by the Darby Refuse Disposal District and is for use almost exclusively by Darby area residents. The other site, at Victor, is privately owned and operated by Charles Mann. During the comment period on the PER, Mann said the landfill ..."can easily take care of this subdivision and a hundred more like it with no adverse effect."

Depending on how fast the subdivisions would be developed, the DHES' Solid Waste Bureau believes the development would have a definite impact on the solid waste system in the area. Unless a new landfill site is developed, it is estimated that solid waste generated by the development would significantly shorten the life of the Victor landfill.

Landfill location is a difficult problem in the Bitterroot Valley, according to the Solid Waste Bureau. Valley land consists generally of sandy, gravelly soils, underlain by high groundwater, and the bench areas pose bedrock problems. Agricultural land in the Valley is generally regarded as too valuable to be used for landfill purposes. Finally, few people want a landfill located next to their home and, as population and homes increase, there will be fewer sites to choose from for landfill needs.

Agricultural or Industrial Production

Most of the 802 acres of the Riverview Orchards Subdivision have been under cultivation in the past. Soils are classed by the Soil Conservation Service (SCS), United States Department of Agriculture (USDA), as Lolo gravelly loam. SCS estimated yield on this soil for spring wheat is 20 bushels per acre and 25 bushels per acre for barley. Therefore, it can be expected that under ordinary management, up to 16,000 bushels of wheat or 20,000 bushels of barley could be produced on this land. The Chicago Board of Trade closing price for September wheat was $3.24¼ on June 19. The grain that could be grown on this land would command a gross value of $51,880 on that day. Net value would be gross value less cost of production.

An estimated 200 acres of the land in the northwest part of Hidden Valley Ranches is in irrigated alfalfa. The soils are classed Lolo gravelly loam and Hamilton-Corvallis silt loam. SCS estimated yields for alfalfa on these soils range from 2.6 to 4 tons per acre. Using an average of 3 tons per acre, an estimated 600 tons of hay could be produced. Since hay prices vary from year to year, depending on availability, revenue estimates would not be meaningful.

Approximately 100 acres in the eastern portion of Hidden Valley Ranches have been cultivated in the past, but now support sparse cover of knapweed, Sandberg bluegrass, cheatgrass and forbs. Surface soils tend to be dry, hard, puddled or in hard clods, gravelly or cobbly and rough. Discing has produced these soil conditions. Yield estimates for spring wheat on these soils is low due to low moisture-holding capacity.

The subdivision of Riverview Orchards will end the growing of wheat or barley. In terms of the alfalfa, some property owners may keep portions of their land in alfalfa, but the large fields will be broken down into smaller parcels.

Industrial and Commercial Activity

Although there are no known plans for commercial developments on any of the subdivisions, the amount of anticipated growth will probably lead to more local commercial activity. This growth could occur in Florence, at the development site or in both areas. It is difficult to predict what types of commercial developments might occur, but certainly some will be aimed at providing goods and services for new and existing residents.

Commercial and industrial development have been approved as permitted uses on about 2,900 acres of the Hensler properties by means of the zoning process. Ravalli County commissioners have approved three zoning petitions, covering portions of Hidden Valley and Riverview Orchards, that provide for one-acre minimum lot sizes, with the following permitted uses: residential, agricultural, industrial and commercial.

It should also be noted that four acres of the adjacent, 40-acre proposed major subdivision--Circle Square Homesites--have been designated at light commercial. This subdivision is at the preliminary review state. Although it is not a part of the development under review in this EIS, it lies in the immediate vicinity.

Access to and Quality of Recreation and Wilderness Activities

Because of its agricultural land base, plus its location along a major water system and between two majestic mountain ranges, the Bitterrot Valley has long been admired as one of the most scenic areas of Montana. The valley's scenic attractions, plus its reputation for good hunting and fishing, have drawn visitors from all over the state and out-of-state tourists as well.

Florence itself provides easy access to a wide variety of year-round, outdoor recreational activities. Located just a few miles from Florence, the Bitterroot National Forest offers a number of recreational opportunities, including hunting (big game and birds), fishing, hiking, camping, horseback riding, cross-country skiing, snow-shoeing and snowmobiling.

Though most recreational activity occurs in the Bitterroot Mountains and along the west side of the valley, the Sapphire Mountains to the east are also used for recreational activity. Some of the major activities in the Sapphires are hunting, hiking, cross-country skiing, horseback riding, snowmobiling and off-road vehicle use. Major access roads into the Sapphires are the Eightmile Creek Road, the Threemile Creek Road and the Ambrose Creek Road. Although these roads are now used moderately, it is anticipated their use will increase substantially with development of the proposed subdivisions. All three roads are near the Hensler Ranch property, and Eightmile Creek Road is the main road that would serve Riverview Orchards, the major subdivision.

Other attractions near Florence are the Selway Bitterroot Wilderness Area, the Bitterroot River and the Ravalli Wildlife Refuge, just south of Florence. The refuge serves as a sanctuary for many species of migratory birds.

The Montana Department of Fish and Game has developed three public fishing access sites along the Bitterroot River. All three sites are only a few miles from Florence and all three currently receive heavy use.

Most of the land in the Bitterroot Valley is privately owned, and permission is often required before entering onto it. A sudden influx of new residents into the area can be expected to put a strain on landowner-sportsmen relations as more and more people seek to hunt and fish on private property.

With increased development and subdivision activity comes increased pressure on all recreational resources in the valley. The quality of the recreational experience can be expected to decline proportionately with increased use of the recreational resource. According to the Gold survey, 61 percent of the respondents expect to see a decline in the quality and availability of recreational opportunities if the Hensler properties are developed.

Locally Adopted Environmental Plans and Goals

In 1976, the citizens of Ravalli County adopted a comprehensive plan for their county. The plan opens with the following goals statement: "The following ideas, expressed as goals, are centered on the proposition that the county citizens cherish the rural life style and value open space, and that direction toward a higher standard of living includes an awareness of the environmental qualities to be maintained for the present and future county residents."

After 31 pages of discussion, the comprehensive plan closes with this statement:

"One basic characteristic of the people of the Bitterroot is their pride in being who they are and where they are. This plan is an attempt to help all of us keep that pride, to assist in maintaining those qualities of life that make the Bitterroot unique. The plan will have succeeded in its purpose if, years from now, we can still all be proud to say that we live in the Bitterroot Valley of Montana."

In other words, the residents of this area take a fierce pride in their environment. Most of the residents live here by choice, and most moved to the area recently for a single reason: they like the rural environment of the Bitterroot Valley. According to the Gold survey, 76 percent of the respondents said they moved to the area primarily for its rural character. The same survey reveals that 73 percent believe there has been an erosion of this aspect of the community over the past three years.

Land-use planning is a controversial issue in Ravalli County. The DHES received 31 letters from Florence area residents and citizen groups during the comment period on the PER. The letters generally expressed concern about the proposed subdivisions and requested further review by the state. Of the 31 letters, 12 were critical of the planning process in Ravalli County. Comments from the letters and from the Gold survey indicate that county residents do not arbitrarily oppose growth, but they do feel threatened by rapid and disorderly growth in their county.

Florence-area residents do not feel they have enough control over what happens in their community, according to the results of the Gold survey. The survey also shows that residents believe "the county boards and commissioners do not entirely share local residents' feelings about growth." In his narrative describing the survey results, Gold states: "While respondents feel that local residents are equally divided between a no-growth policy and the promotion of planned growth, only 27 percent see the county boards and commissioners as promoting planned growth, and 40 percent see them as promoting spontaneous growth.

Twenty-five percent say they could not characterize the county boards' and commissioners' policies on growth." Although half the local residents believe they should have the most control over growth in their area, according to the survey, "the majority of respondents see those presently in control of growth decisions (real estate developers, large landholders and the county commissioners) as leading them away from a controlled or planned growth policy."

According to local newspaper accounts, planning board meetings dealing with development of the Hensler properties have been heated and well attended. In their letters to the DHES and in published news accounts, area residents have criticized the process by which several minor subdivisions, with a potential major impact, can avoid extensive review at the local level (Refer to section on Background, page 6). To date, 27 of the potential 76 minor subdivisions in COS 1316 and COS 1503 have been approved by the local planning board. They are still pending before the county commissioners.

The commissioners have approved three zoning petitions covering portions of the Hensler property, including portions of Hidden Valley and Riverview Orchards. All three petitions, which cover about 2,900 acres, provide for one-acre minimum lot sizes, with the following permitted uses: residential, agricultural, industrial and commercial. Although current protective covenants restrict lot sizes in the minor subdivisions to five acres, the zoning resolutions clearly indicate the potential for one-acre lots upon expiration of the initial term of the covenants on January 1, 1983.

Here is what the Ravalli County Comprehensive Plan says about zoning: "Some sort of order is needed if the growth of Ravalli County's population--evident in the past few years and projected to continue--is not to produce a rural slum and a blighted landscape. Everything that is being built and will be built in the future cannot be beautiful, and a sprawl of eyesores the length of the Bitterroot Valley will please no one. Moreover, unplanned neighborhoods tend not to be neighborhoods at all, but merely clusters of isolated people. Without some prior planning, there can be no sense of community among groups of people in the valley, no conveniently organized areas for industry, no healthy clusters of commercial enterprise."

Transportation Networks and Traffic Flows

The Montana Department of Highways was asked to comment on impacts of the Hensler Ranch subdivisions on roads and traffic in the Florence area. In a memo dated March 2, 1978, the department defined the impact as major. The Department was asked to elaborate on this statement after it was decided that an EIS would be written for the development in compliance with the Montana Environmental Policy Act (MEPA). The department declined to elaborate, stating the roads in the area are maintained and controlled by the county.

Jay Unrue, head of the Ravalli County Road Department was also asked to comment on the situation. Unrue said the East Side Highway (Montana Highway 203) is a good road that can handle the anticipated traffic increase.

The East Side Highway makes a 90-degree curve at the Hensler Ranch subdivisions. The county road that would serve Riverview Orchards intersects the highway near this curve. A private access road that would serve the minor subdivisions enters the highway just south of the curve. Mr. Unrue said he does not believe the location of these intersections would create problems.

The DHES requested written comments from the Ravalli County Road Department concerning impacts of the Hensler Ranch subdivisions. No reply has been received.

It should be noted that since Florence is generally regarded as a bedroom community for Missoula, a development of the magnitude proposed would significantly raise the amount of commuter traffic on Highway 93 between Florence and Missoula. The traffic issue was raised by several of the area residents who submitted letters to the DHES during the comment period.

Demands for Energy

Representatives of both the Ravalli County Electric Cooperative and Mountain Bell said they would be able to service the proposed Hensler Ranch subdivisions.

Full development of the properties would necessitate a new substation, according to Gary Mason, a representative of the electric cooperative. Cost of a new substation would be shared by the Ravalli County Electric Cooperative and the Missoula County Electric Cooperative since the substation would service customers of both cooperatives. According to Mason, the main power line to the Hidden Valley subdivisions would be paid for by the developers. All power lines in Hidden Valley would be underground. Mason said he did not know who would pay for the main line to Riverview Orchards. The main line would be above ground with underground service connections.

Since the Ravalli County cooperative supplies electricity only, any auxilliary power or heating sources would probably have to be supplied by the individual property owners.

Telephone service will be provided by Mountain Bell from its Missoula station. According to Jack Pippy of the Missoula station, the quality of service will depend largely on the rate of development. If growth is moderate and can be forecast, Pippy anticipates no problems. However, if growth is erratic or slow or if it mushrooms, he said it would be difficult to supply adequate service.

Another major energy consideration is the commuter traffic that would be generated by the proposed subdivisions. It is anticipated that most of the new residents would work outside of Florence and many would work in Missoula, which would mean a 40-mile round trip each workday.

In a time of high fuel prices and growing awareness about finite fossil fuel supplies, the necessity to commute is probably becoming a major consideration in home-buying decisions.

PRIMARY, SECONDARY AND CUMULATIVE IMPACTS

Primary impacts include the change in land use and the apparent lack of local support for high density, rapid development.

The proposed subdivisions will change the area from a rural, agricultural area to a more suburban community. According to the Gold survey, people in the Florence area are not anti-development, but they do not want rapid, high density growth and the problems associated with such development.

Secondary impacts include such things as loss of wildlife habitat, increase in the demand for local government services and the possible alteration of air quality.

Development of the 2,500-acre tract will eliminate a great deal of natural habitat, thus resulting in game and non-game wildlife moving out of the area and into quieter, more protected areas. There is a possibility the migration from one area to another will cause crowding in adjacent areas.

If rapid development occurs, local government services -- such as schools, law enforcement, fire protection, roads, etc. -- will be impacted. The subdivisions will generate more tax income, but whether the increases will cover the services is a point of conjecture.

If local residents and homeowner associations do not take steps to surface roads or suppress road dust, it is possible federal air quality standards will be exceeded.

The cumulative impact of the proposed subdivisions will be a change from a rural to a more urban community and the permanent loss of agricultural land. By itself the loss of crop land should not affect agricultural production in Ravalli County; however, it adds to the cumulative loss of agricultural land to residential development in the county.

POTENTIAL GROWTH INDUCING OR INHIBITING IMPACTS

If the developments on the 2,500-acre tract prove to be successful, they could prompt the development of the 1,950 acres, southeast of the property now being reviewed. The growth could encourage the creation of additional developments, such as the proposed Circle Square Homesites, in the immediate vicinity of the land now under review. Thus, there is a good chance the proposed developments will be growth inducing.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL RESOURCES

As previously discussed, land use and aesthetics will be forever changed, along with possible negative impacts to air quality and water availability.

ECONOMIC AND ENVIRONMENTAL COSTS AND BENEFITS

Economic

Benefits:

1. Tax revenues for Ravalli County will increase.
2. There will be greater demands for local goods and services.
3. Development and construction will create short-term jobs.

Costs:

1. There will be a need for more local government and human services, such as schools, law enforcement, fire protection, roads, etc.
2. The cost of building and living will probably be higher than if the development were situated near a major urban center, such as Missoula or Hamilton.
3. There will be a loss of agricultural production.

Environmental

Benefits:

1. The chance of over-grazing on dry benchland areas will be reduced.

2. People moving into the developments will enjoy some of the benefits of rural living; however, if rapid, high density development occurs, the character of country living will change.

Costs:

1. The development will cause a permanent change in aesthetics and land use.
2. More stress on recreational opportunities in the area and possibly more strain on landowner-sportsmen relations.
3. The development will possibly degrade air quality and water availability.
4. Household pets may cause harrassment of wildlife and domestic livestock.
5. The rural character of the Florence area is likely to be changed.
6. Wildlife habitat will be lost to residential development.

Short-term vs. Long-term Costs and Benefits

Short-term

Costs:

There will be some degradation and disruption of the land during the construction of roads and houses.

Benefits:

Jobs will be created by the construction associated with the subdivisions.

Long-term

Costs:

There will be a loss of wildlife habitat and the area will change in terms of character and aesthetics.

Benefits:

The reduction of grazing will benefit some of the dryland bench areas which have been over grazed in the past.

ALTERNATIVES

1. Disapprove the subdivisions:

The Hidden Valley Ranches, COS 1316, and COS 1503, would remain as twenty-acre parcels and perhaps exemptions would be used to create a similar number of parcels on a piecemeal approach. Riverview Orchards subdivision would remain with its present configuration of approximately 72 lots.

2. Unconditional approval:

The subdivision would be approved without any additional requirements.

3. Conditional approval:

A. Riverview Orchards Subdivision cannot be approved until the items requested in the February 24, 1978, letter from DHES to Professional Consultants, Inc., have been received. Those items are:

1) Percolation tests on lots 6A and 6B exceeded 60 minutes per inch, which is an unacceptably slow rate. An acceptable sewage treatment site must be found before approval of lots 6A and 6B can be granted.

2) An additional $50. review fee must be submitted (154 lots x $25. per lot =$3,850. The Department received a check for $3,800.).

3) A letter of approval from the Ravalli County Health officer or his agent.

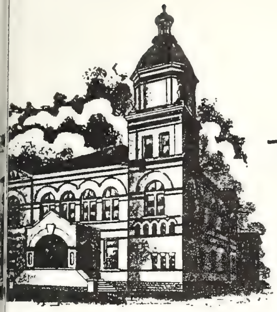
B. The Air Quality Bureau, DHES, has determined that road dust from the Hensler Ranch Subdivisions (which include: Riverview Orchards and Certificates of Survey 1316 and 1503) will create violations of federal ambient air quality standards unless appropriate preventive action is taken.

The DHES will issue an administrative order to parties responsible for maintenance of the roads under the provisions of ARM 16-2.14 (1)-S1440 Particulate Matter Airborne that will require the initiation of appropriate road dust control measures.

RECOMMENDATION

Based on the information in this EIS, the DHES recommends alternative three, conditional approval of Riverview Orchards and the parcels being reviewed in Certificates of Survey 1316 and 1503.

Appendix A



County of Ravalli
STATE OF
MONTANA

Hamilton, Montana

January 11, 1978

RECEIVED

FEB 17 1978

MONTANA DEPT. OF HEALTH

State Dept. of Health & Environmental Sciences
Subdivision Division
State of Montana
Helena, Montana 59601

Gentlemen:

Under the present rules observed in Ravalli County at this time, Ammended Subdivision Plats are not reviewed by the Planning Board.

After consulting with those in charge of surveying the several lots in RIVERVIEW ORCHARDS, shown on the enclosed plat, we feel it is in the best interest of the County and particularly the office of Clerk and Recorder that these several potential Ammended Subdivision Plats be filed on one sheet.

Thank you for reviewing this and all platted lands to help assure the health and safety of the people of Ravalli County.

Sincerely,

Jim McKeldy

D. W. Galbraith

Hugh G. Cumming

RAVALLI COUNTY COMMISSIONERS

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CONTRIBUTORS

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

STATE DOCUMENTS

September 16, 1974

SEP 24 1974

Honorable Thomas Judge, Governor, State of Montana, Helena
Delbrook Licktenberg and H. B. Lande, c/o Survco, Inc., 103 Commercial Drive, Bozeman
Thomas Overturf, Gene Cook, Larry W. Olsen, 208 North 29th, Suite 212, Billings
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Highways, Helena
Department of Natural Resources and Conservation, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North Bozeman Ave., Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13th Avenue, Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard C. Ritter, Box 1170, Bozeman
Fish and Game Department, Helena
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, University of Montana
Montana State Library, Helena
Ed Mohler, Gallatin County Tribune, 201 Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, Larry Uman, University of Montana, Missoula
Consumer Advocate, Governor's Office, Helena
Rick Applegate, Box 931, Bozeman
Joe Sabol, Attorney, 27 North Tracy, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman
County Assessor, Courthouse, Bozeman
County Sheriff, County Jail, Bozeman
Superintendent of Schools, Courthouse, Bozeman
State Superintendent of Public Instruction, Helena
Soil Conservation Service, Federal Building, Bozeman
Gallatin National Forest Supervisor, Federal Building, Bozeman
Layton Thompson, 918 S. Tracy, Bozeman
Carl Anderson, Montana Power Company, Butte
Environmental Information Center, 9 Last Chance Gulch, Helena

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930 East Lyndale Avenue
Helena, Montana 59601

Ladies and Gentlemen:

This draft environmental impact statement has been prepared in compliance with the Montana Environmental Policy Act. At the advice of the Environmental Quality Council, the statement was prepared to deal with the cumulative impacts of two separate subdivisions. One of the two, Hyalite Foothills, was proposed for development in two sections, but removal of the sanitary restrictions was requested for both sections so it has been considered as a single development. To the extent possible, the impact of existing subdivisions in the area also was considered in the preparation of this statement.

Comments and questions will be accepted for at least 30 days, and a 15-day extension may be granted for sufficient reason.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technicial Writer
Environmental Sciences Division

DV:dg

Draft Environmental Impact Statement for Hyalite Meadows and Hyalite Foothills No. 1 and No. 2, proposed subdivisions in Gallatin County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions, section 69-5001 through 69-5005; and the act controlling water pollution, Section 69-4801 through 69-4827; this impact statement was prepared in response to requests that the sanitary restrictions be removed from the proposed above subdivisions.

I. EXPLANATION OF THE PROPOSED ACTION

Two sets of developers wish to subdivide two pieces of property in the Hyalite area. One of the subdivisions, Hyalite foothills, is divided into two development areas, designated as No. 1 and No. 2. These two sections total 356.712 acres, which would be divided into 91 lots by the developers, Delbrook Licktenberg and H. B. Landoe. The property is located in Sections 10 and 15, Township 3 South, Range 5 East, as shown on the attached map.

Hyalite Meadows is located in Section 3 of the same range and township, also shown on the map. This subdivision would consist of 26 lots on 81.151 acres. The developers are Thomas Overturf, Gene Cook and W. Larry Olson.

Both subdivisions would utilize individual wells and individual septic tanks. Development would be restricted to single family dwellings. There would be no cut and fill for roads. Road surfaces would be gravel, with roadside drainage ditches. If dusty roads became a problem, they would be the responsibility of the Homeowners Association, which would be formed by lot owners to deal with common problems.

A commercial trash hauler has verified that he would be available to remove solid waste from these developments. Power and telephone lines would be underground.

In Hyalite Meadows, a total of 9.926 acres would be dedicated as parkland, in three pieces. One section of the parkland, comprising 1.032 acres, is along Middle Creek in the southwest corner of the property.

A system of irrigation ditches exists on the Hyalite Meadows property. If this is subdivided, the ditches will remain essentially as they are, within 40 and 50 foot ditch easements.

Two areas totaling 39.605 acres would be dedicated as parkland on the Hyalite Foothills property. Included in this area is 23 acres along Middle Creek. There woul no alteration of the existing stream bank, and septic tank drainfields must conform with state regulations by remaining at least 100 feet from the high water level of the creek.

Irrigation ditches on the Hyalite Foothills property probably can be eliminated, as they are used only for agricultural irrigation on the land to be subdivided. Logs of wells deilled in the area indicate wells between 40 and 70 feet deep produce ten to thirty gallons per minute, which is much more than enough.

II. EXISTING ENVIRONMENT

A. Soils

The Hyalite Meadows Subdivision consists almost entirely of Huffine Silt Loam and Huffine Gravelly Loam soils. Almost all of this land is irrigated cropland. According to information from the Soil Conservation Service, this land, when irrigated, has a potential agricultural yield as follows:

	Winter Wheat	Spring Wheat	Barley	Alfalfa
Per acre yield	55 bushels	50 bushels	75 bu.	5 tons
Total yield	4455 bushels	4050 bushels	6075 bu.	405 tons

The same soil type and productivity is found in the Hyalite Foothills, but only abou 220 acres of this land is useable for agriculture. Total potential yields on this property are as follows:

Winter Wheat	Spring Wheat	Barley	Alfalfa
12,100 bushels	11,000 bushels	16,500 bushels	1100 tons

These yields are average estimates based on good management.

Tests indicate that these soils are quite porous and suitable for septic tank drainfields. These tests, performed by SURVCO, an engineering firm hired by the subdivider, showed percolation rates range from approximately 1 minute per inch to about 12 minutes per inch, with the average around 6 minutes per inch, which is excellent for septic tank use. One test was made per lot.

One soil profile hole was sunk per five acres of land. These holes went down ten feet and found no groundwater. A map prepared by the U.S. Geological Survey shows groundwater more than ten feet down throughout both proposed developments. The irrigation ditches in Hyalite Meadows apparently have no effect on the water table, as holes sunk next to them did not detect any seepage.

The level of Middle Creek is at least 20 feet below the surface of all lots, so there is no floodplain problem.

B. Vegetation

All this land is used to agricultural crops except for the area along Middle Creek, where there are some shrubs and deciduous trees.

C. Wildlife

According to the Department of Fish and Game, this is not a critical wildlife area. Species found occasionally on the land include pheasant, magpie, mourning dove, fox, skunk, jackrabbit, and cottontail rabbit, with rainbow and brook trout in the creek.

D. Topography

The Hyalite Meadows land is generally flat. Hyalite Foothills is mostly flat with some steeper area on the south end. It appears that each lot has sites suitable for house construction and drainfield location, except lot 37, in Hyalite Foothills No. 1.

E. Existing Development

Considerable subdivision activity already has occurred in the area of these proposed developments. In the immediate area, there are five subdivisions which have existed an average of approximately three years. These developments comprise approximately

100 lots, of which about one-third have been built upon.

According to a spokesman for the Gallatin planning office, the 4,000 acre Hyalit area has been 19 percent subdivided to date. THis subdivided area consists of 730 acrs divided into 235 lots, currently occupied by approximately 200 persons.

Up to the present, the spokesman said, almost no subdivision has occurred on good agricultural land in the Hyalite vicinity.

III. PROBABLE ENVIRONMENTAL IMPACTS

A. Water Pollution

The groundwater is at least ten feet down on this property and should be safe from pollution be septic tank drainfields. Drainfields must be at least 100 feet from surface water, which is deemed a sufficient separation to protect surface water from contamination.

B. Air Pollution

There might be a dust problem from the gravel roads in the area, but this coul be corrected by residents of the subdivision through the Homeowners Association. The residents would have to pay for the road treatment, and they would be the ones who would have to suffer the dust if it were not corrected.

If the residents of the subdivision came from outside Montana, they would cause an additional consumption of electrical energy, which might lead to the construction of new coal-fired generating plants which would further pollute the air of eastern Montana. Some air pollution impact thus could occur away from the site of the building, where it would have an impact on persons not connected with the subdivision.

A spokesman for the Montana Power Company said an average house would use about 4 kw of electrical energy, so the 117 units contemplated in these two subdivisions would accounty for about 468 kv. The MPC spokesman said he did not expect any shortage of generating capacity, provided the Colstrip generating units went on line as scheduled. He said that in 1973, MPC connected a total of 290 new single family homes, 303 mobile omes, and 212 multi-family living units in the area roughly bounded by Gardiner, Livingston, ozeman and Ennis. The West Yellowstone area is not served by MPC. In 1972 there were 279 single family homes, 571 mobile homes, and 184 multi-family units.

There should be little or no impact from new power lines to serve the proposed subdivisions, as they will be run from a nearby substation.

C. Visual Impacts

If full development occurs, the scenery will go from pastoral to suburban.

D. Law Enforcement

The Gallatin County sheriff said no additional staff would be hired to extend law enforcement to these developments or any others. He said that his staff is already "short handed and run to death," and that subdivisions add to the over-extension of his responsibilities. Sheriff's deputies spend an increasing amount of time responding to "lost horse reports" and other problems in subdivisions, the sheriff said.

Thus, the subdivision of this land apparently would not cost the county any more for law enforcement, but would result in generally poorer law enforcement elsewhere in the county. Eventually, increased population and the redistribution of existing population by subdivisions probably would cause expansion of the sheriff's staff.

E. Schools

The extent to which subdivision of this area would burden the schools depends on what type of persons buy the property, and where they are from. If relatively young families with children move into the area from outside the state, the total cost of schooling would increase along with the increased number of students in Bozeman area schools. If families with children already attending school in Bozeman move to the subdivisions, the only increase in cost would be for busing.

The Anderson School, a one-room building with one teacher and eight grades, is located just west of these subdivisions. The Anderson School clerk said that the school currently has too few students to maintain its accreditation, and would welcome up to 16 more before another teacher or teaching aide would have to be hired.

High school students would have to be bused to Bozeman.

If the students were from outside the area, the additional costs of schooling wo be approximately $857 per student on the average, including both grade school and hig school students, according to a spokesman in the office of the State Superintendent of Public INstruction.

Busing costs from the area would be approximately $442.80 per year, according to county school superintendent's office. Approximately four students are now bused from the area, and a few more could ride the present bus without any problem, but a substant increase in students, such as might result if many families moved into the area, would require either an additional bus or another run by the present bus, boosting costs.

The state superintendent's office said families now have an average of 8/10ths child each. This average was observed in growth areas such as Colstrip, where most of t families moving in are relatively young and thus have school age children. It is not likely that families of the same type would move into the Hyalite area in the near futur if ever, considering the costs of building the types of bousing seen in the area.

A spokesman for the Gallatin planning office said most of the people living in the area now are in advancing middle age. They are mostly from Bozeman where they have lived for a relatively lont time, he said, but they are selling their houses in Bozeman or renting them to university students and putting their money into "their deam homes in the country," before the economic situation deteriorates sufficiently to prevent them from doing so. A spokesman in the county assessor's office said subdivision activity is accelerating in the area because many subdividers fear the legislature will in the future take strong measures against subdividing.

If we assume a worst case situation, wherein both of these subdivisions were fully occupied by 117 families with an average of 8/10ths child each, we still have difficulty calculating the total costs. We already have calculated the cost of educating the high school students, at $857 each, plus the total busing costs of $442.80 per year.

The cost for schooling the grade school students cannot be calculated at this time. there were approximately 70 grade school students, the Anderson School would need ee new rooms and at least three new teachers. In view of the skyrocketing costs of struction, it would be meaningless to estimate the cost of the school expansion 10 rs in the future, which probably would be the soonest it would be necessary, if in t it ever was necessary. Probably the $857 per student estimate would be valid er the long run.

Both the subdivisions currently under construction are within three miles of the derson School, so parents would be responsible for transporting students to the school, der state regulations.

F. Fire Protection

There is no publically financed fire protection organization in the Hyalite rea. If and when a fire district is formed, it will be financed by those coming under ts protection.

G. Recreational Impacts

The U.S. Forest Service District Ranger said development of subdivisions in he Hyalite area would not hinder public use of the national forest land. It seems robable however that an increase in the number of people living near the forest would result in more use of the public land and thus greater impacts.

H. Tax Revenue

Subdivision of the property in question would result in a substantial increase in property tax revenues. The taxable value of the land changes when the use of the land changes. Agricultural land is rated according to its productivity. There are approximately 25 taxation classes on land, depending on the use.

The land within the boundaries of the proposed subdivisions has not been assessed as a unit, so the exact taxable value cannot now be determined. However, records in the county assessor's office show that 139 acres of irrigated cropland on the property comprising part of the proposed Hyalite Foothills subdivision was assessed at $4185. An adjacent 20 acres of grazing land fell into a different classification, and was assessed at $15. Taxable value is 30 percent of assessed value, so the taxable value of the 139 acres would be $1255.50. The taxable value is multiplied by the mill which in this case is 168.15 mills, and the actual tax due on the 139 acres would be $211.11. The land would be taxed much higher if it were subdivided. The county asses reported that the average assessed value per subdivision acre is approximately $84. Therefore, after subdivision, the tax revenue on the 139 acres would be $587.97. However, Gallatin County subdividers get a 50 percent tax break on subdivided land, whi would drop the initial tax revenue on the 139 acres to approximately $294. Tax revenue would increase above the $294 as lots were sold and the new buyers assumed the full tax burden. If no lots were ever sold, then the 50 percent break would remain in effect and the taxes would be only half what they would be if all lots were sold.

If all the crop land in the two subdivisions were taxed the same as the 139 acres mentioned above, it would bring in approximately $445 in taxes annually.

If all the grazing land were valued same as the 20 acres mentioned above, it would bring in approximately $4.82 in taxes, in its present use.

The total acreage of the two subdivision is approximately 437 acres, which could produce up to $1700 in taxes when all lots were sold, at the current millage. Thus, the land itself would bring in about $1240 more in annual tax revenue as a completely sold subdivision than it would as agricultural land.

When houses were built on the land, a much more significant tax boost would be felt. Assuming that the average house on the land would be worth $40,000, as estimated by the assessor's office, each house would bring in approximately $807.12 in taxes annually. If each of the 117 lots had a $40,000 house, revenue from the houses alone would be approximately $95,000.

This would appear to offset the costs of schooling the children of the 117 families, ich would be approximately $82,000 per year if the families averaged 8/10ths of a child ch and if it cost an average of $857 per year to educate each child. In view of the parent tendency of the land in the Hyalite area to be purchased by persons of middle e or older, it appears likely that there would be far fewer children than if younger milies were to move in, so the school costs might remain relatively low.

Another economic consideration is the loss of this land for agricultural use. the Soil Conservation Service is correct that the land could grow over 15,000 shels of wheat, and if wheat is worth $5.00 a bushel, then a loss could be more than 75,000 per year.

If the buyers of lots were from outside the state, their income taxes could be dded to the beneficial economic impact of these subdivisions. The amount of increased evenue realized from income tax paid by each new family cannot be calculated. There robably are many economic considerations that have not been mentioned in this statement, and the authors do not pretend that this economic analysis is exhaustive. However, unitl research by economists can provide the information necessary to analyze the impact of subdivisions such as these, no better information is likely to be forthcoming.

IV. ALTERNATIVES AVAILABLE TO THIS DEPARTMENT

A. Grant the removal of sanitary restrictions as requested.

B. Deny removal of the sanitary restrictions.

C. Grant the removal of the sanitary restrictions contingent upon the meeting of certain conditions.

A review of all available data on these developments, plus inspection of the property by state and county health officials, does not indicate the need for any special conditions to be placed upon the removal of the restrictions. One alternative that might be preferred by some would be a community water and sewer system, but that does not seem justified in this case, as the soil seems well suited to the use of septic tanks without any dange of ground or surface water contamination.

V. CONCLUSIONS

There does not appear to be any reason why the proposed subdivisions hsould not be approved except for one lot as noted. The information currently available will be reviewed in light of comments received following publication of this impact statement. If there is no substantive information to the contrary, the restrictions will be removed, with the understanding that the Gallatin County sanitarians will inspect and approve the installation and operation of all sewer and water systems.

VI. AUTHORS AND SOURCES OF INFORMATION

This impact statement was written by Daniel Vichorek, Technical Writer, Environmen Sciences Division. Information was furnished by the developers and their engineering consultants, and by the office of the Gallatin County Superintendent of Schools, the County Surveyor, the Department of Fish and Game, the U.S. Forest Service, the county assessor's office, the Office of the State Superintendent of Public Instruction, the office of the Gallatin County planners, the Gallatin County sanitarians, The Montana Power Company, Dr. Layton Thompson of Montana State University, the Soil Conservation Service, the County SHeriff, and All Keppner, Soil Scientist for the Water Quality Burea.

Several publications were reviewed to determine their applicability to the subdivision situation in the Hyalite area.

These were as follows:

The Costs of Urban Growth: Observations and Judgements by Richard C. Bradley, Pike's Peak Area Council of Governments, 1973

The Gallatin Area, A Summary Report, Bulletin 344, Gallatin Canyon Study Team, February, 1974

Mountain Recreational Communities and Land Use, "The Summit County Experience," Dr. Wilbert J. Ulman, The Colorado Land Use Commission, December, 1973

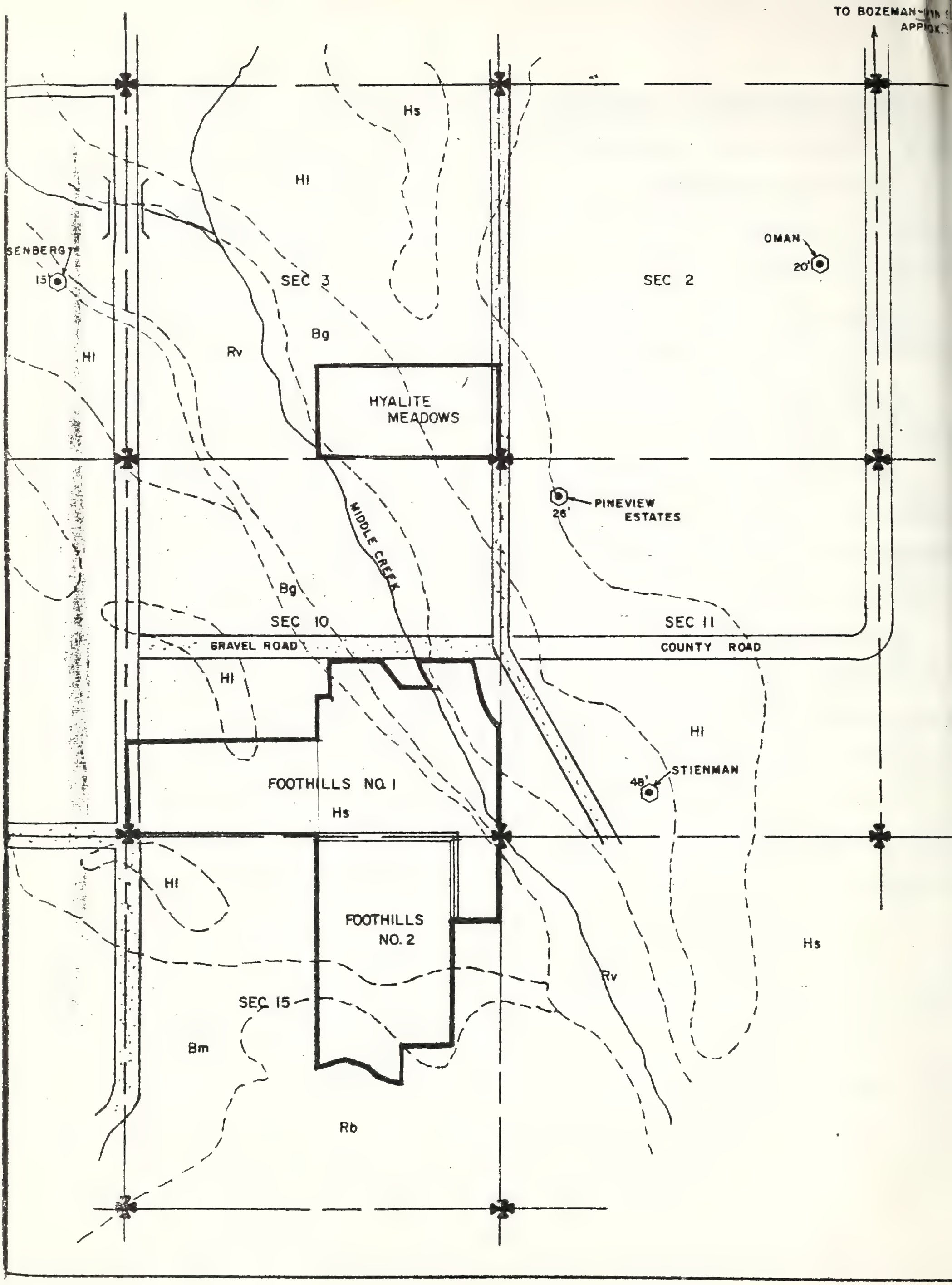
The Direct Costs of Growth, A comparison of changes in local government expenditure growth and non-growth counties in Colorado, by Therese C. Lucas, the Colorado Land se Commission, April, 1974

Local Tax Impact of Recreational Sub-Divisions, A Case Study, Oregon State University xtension Service, Special Report 365, July, 1972

A Taxpayer's Problem--Recreational Subdivisions in Utah, by Donald W. MacPherson, Jtah State University, 1973

Following review of these documents, the authors concluded that the information ublished was contradictory and generally irrelevant to the subdivisions here under consideration, but they are mentioned here as a bibliography for persons interested in subdivision research.

Future research into the benefits and impacts of subdivisions should be based on the realization that no subdivision is exactly like any other, and the variation from case to case is sufficient to require that specialists examine each subdivision in depth to determine its probable effects.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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

October 17, 1973

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Board of County Commissioners, Courthouse, Townsend
City-County Planning Board, Townsend
Townsend Star, Townsend
Thomas, Dean & Hoskins, Inc., 1111 No. 7th Avenue, Bozeman
Mr. John M. Kretinger, Box 616, Three Forks
Department of Fish and Game, Helena
Environmental Quality Council, Helena
Mr. James Goetz, Bridger Canyon Bozeman
Mr. Cleve Johnson, Sanitarian, Courthouse, Boulder
Department of Intergovernmental Relations, Division of Planning, Helena
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Ms. Dorothy Bradley, Route 3, Box 114, Bozeman
Mr. Raymond Hurley, Joe Brooks Chapter, Trout Unlimited, Box 271, Livingston
Ms. Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Mr. Perry Nelson, 526 North Bozeman Avenue, Bozeman
Mr. Charles Bradley, 1105 South Tracy, Bozeman
Mr. Rick Graetz, Box 894, Helena

Gentlemen:

This impact statement is submitted for your consideration. Comments or questions should be submitted to me within 30 days. A 15-day extension of the comment period can be granted if there is a good reason.

Sincerely,

Daniel Vichorek

Daniel Vichorek, Technical Writer
Environmental Sciences Division

DV:sh
cc: Ben Wake

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MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

October 17, 1973

DRAFT ENVIRONMENTAL IMPACT STATEMENT
for
JEFFERSON RIVER ACRES, A PROPOSED SUBDIVISION IN BROADWATER COUNTY

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); and the act controlling both public and private water supply and sewage disposal for subdivisions; and the act to control water pollution, this statement was prepared by the Environmental Sciences Division of the State Department of Health and Environmental Sciences for the above development for which a request has been received for the removal of the sanitary restrictions. State law requires that the sanitary restrictions be removed before construction on a subdivision of any building requiring facilities for the supply of water or the disposition of sewage or solid waste.

Location

This property is located in the south central portion of Section 28, Township 2 North, Range 1 East on the west bank of the Jefferson River adjacent to old Highway No. 10 as shown on the attached map.

Description of Proposed Development

The owners, John M. and Stanlie J. Kreitinger, would divide 15.159 acres into 11 lots. Four of the lots would front on the Jefferson River, and would be partially flooded by high water in the spring and as a result of ice jams during some winters, according to the Floodway Management Bureau of the State Department of Natural Resources and Conservation. The FMB said backwater from ice jams on the Jefferson River near Sappington, upstream from this property, has reached depths to 12 feet.

On this property, therefore, the flood plain limit is estimated to lie about 12 feet above the present surface of the water. This estimated flood plain leaves room for the required 100-foot separation between the highwater level and a septic tank drainfield on each lot.

Road surfaces would be gravel. Roadside ditches and cross culverts would accommodate runoff. A fairly substantial fill and a large culvert would be required for a proposed road to cross a deep dry wash on the lower end of the property. This wash handles quite a lot of runoff in the spring, and the river at maximum flood apparently would back water about 250 feet into the development to a point in the dry wash upstream from the road.

The dry wash area would be dedicated as public park land, which is of marginal value for this purpose.

The owner proposes that temporary overhead utility lines serve the first house that would be constructed on the development this fall. Underground lines would then be installed in the spring. The relatively high cost of placing the lines underground was the reason they will be temporarily overhead.

A commercial trash hauler from Three Forks would be available to remove solid waste from the development according to the property owner.

Individual septic tanks and drainfields would be used for sewage disposal. Individual wells would supply water.

Topography and soils

The surface of this property is rolling to steep in the vicinity of the park and property lines. Except for the flood plain area noted above, the property is well above the river bank. The developers' consulting engineer reported that there were two to three inches of topsoil overlying eight to twenty feet of gravelly clay ranging from fairly clean gravels to portions that are about 50 percent clay gravels.

Information from the Soil Conservation Service indicates that most of the soil on the property is of the Musselshell-Crago Complex.

Crago soils are heavy loam or clay loam that average about 30 percent clay and 55 percent coarser than 2 mm. The coarse fragments are mainly less than three inches in size, consisting of limestone, argillite or quartzite gravel. Mineralogy is carbonatic with the fine earth fraction (less than 2 mm) having from 15 to 60 percent $CaCO_3$ equivalent and the whole soil including fragments less than 20 mm in size having from 50 to 70 percent $CaCO_3$ equivalent. Depth to lithic or paralithic contact is more than 60 inches.

These soils are on nearly level to sloping high terraces and broad outwash piedmont fans and on steep edges of these landscapes.

Soils of the Musselshell series are found on smooth uplands and stream terraces. They formed in loamy calcareous sediments over very gravelly sandy loam. The volume of coarse fragments above the IIC Horizon ranges from 0 to 20 percent. The 10 to 40 inch control section averages 10 to 18 percent clay and 20 to 60 percent calcium carbonate, including 15 to 35 percent limestone fragments 2 to 20 mm in size. The IIC Horizon is gravelly or very gravelly, sandy loam or loam, containing 40 to 60 percent by volume of coarse fragments. IIC Horizons of very gravelly loamy sand or sand occur below 40 inches in some pedons.

Percolation rates measured by the consulting engineer ranged from .49 minutes per inch to 1.36 minutes per inch. These rates are extremely rapid. All tests encountered gravelly clays.

Two wells have been drilled on the property in the vicinity of the southwest corner. One of the wells was approximately 70 feet deep and produces approximately seven gallons per minute. The second well some distance from the first is approximately 35 feet deep and produces about 21 gallons per minute.

Both these wells are on the relatively low land outside the flood plain. There is one well on higher land above the proposed subdivision. This well is 180 feet deep and reportedly produces enough water to supply a family home.

The presence of these three wells seem to indicate that there is sufficient groundwater to supply the subdivisions. There does not appear to be any difficulty in keeping the proposed drainfields at least four feet above the water table, even during the high water period. Depth to water table is not certain, but was first encountered at about 50 feet by the well driller.

There is some juniper and cottonwood growth along the dry wash and in a gully on the west side of the property. Other than these few trees, the existing vegetation is sparse native grass and much cactus. The current use of the land is pasture.

There apparently is little or no use of the land by wildlife.

Impacts

The impacts from this development probably will be primarily visual. Some dust might result from the gravel roads proposed. There would be some minor emissions from stoves and furnaces. There should be no impact on wildlife.

Alternates

Alternates available to this department include:

1. Approve as requested
2. Disapprove
3. Approve the development contingent upon certain requirements

At this time, there appears to be no legal justification for denying approval of this development. Approval would be made with the understanding that the county sanitarian would supervise the installation of all water supply and sewage disposal facilities.

Short-term/Long-term comparisons

This land has little value for agricultural purposes. It is worth much more to the developer as a subdivision. This situation leads to a land use pattern which has a large cumulative effect on the environment. Land planners and lawmakers should find ways of discouraging rural sprawl along state waterways.

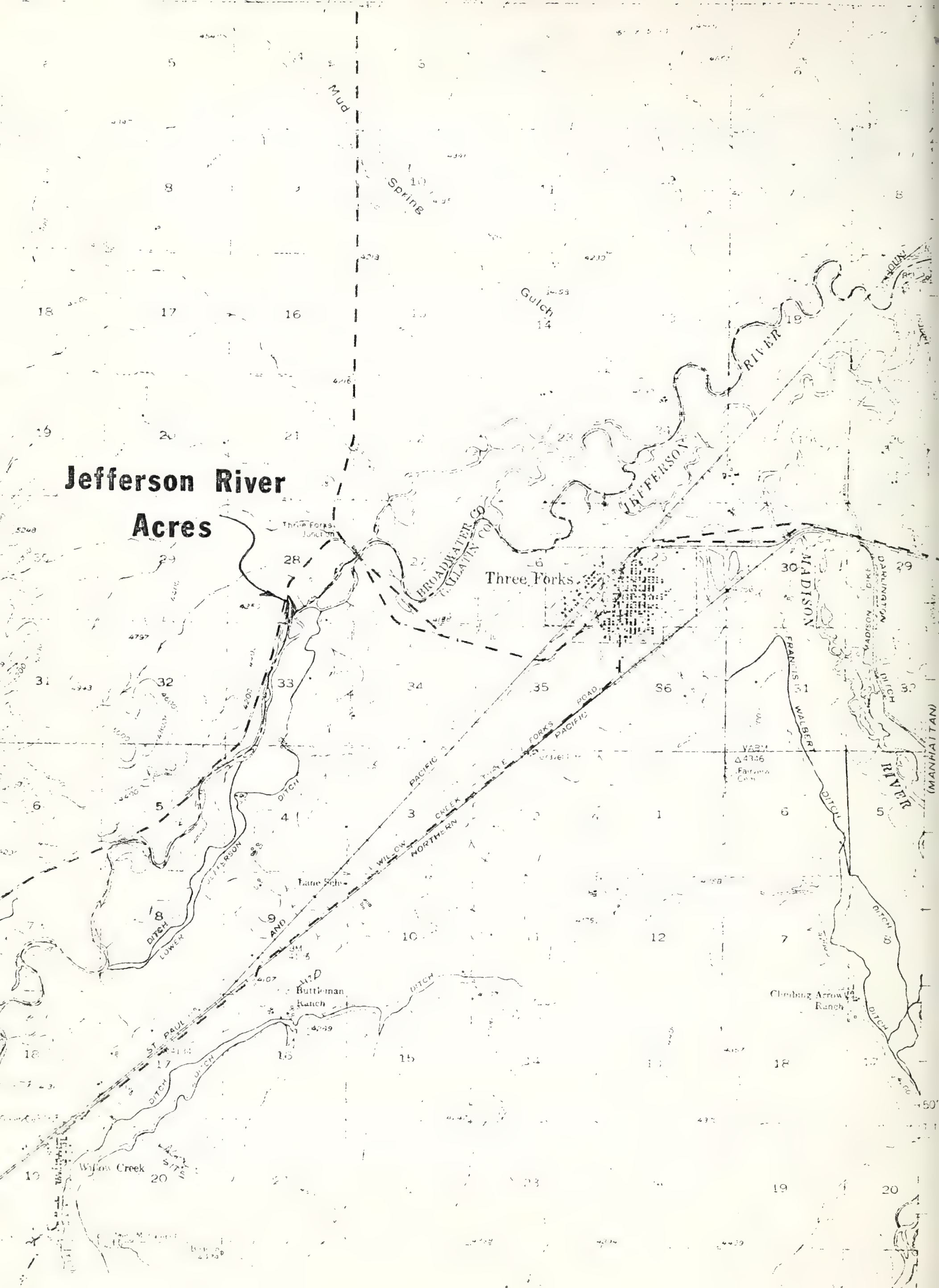
Irreversible commitment of resources

Some non-reclaimable resources would be used in construction. The site itself probably would be reclaimed to its present use.

Comments

If no adverse comments are received, this development could be approved no sooner than 60 days following issuance of this statement unless the Environmental Quality Council waived a portion of the waiting period. The proposal will be evaluated in the light of comments received.

This statement was written by Daniel Vichorek, Technical Writer, with information furnished by the land owner; the engineering firm of Thomas, Dean & Hoskins, Inc.; Al Keppner, Soils Scientist; and the Soil Conservation Service.


Jefferson River Acres
Mud
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Three Forks
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(MANHATTAN)
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Gallatin National Forest Headquarters, Bozeman
Bozeman Chronicle, Bozeman
Fletcher Newby, Environmental Quality Council, Helena
Montana Fish and Game Department, Helena
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Perry Nelson, 526 North Bozeman Avenue, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Rick Graetz, Box 894, Helena
Ken Porter, 502 South Grand, Bozeman

The enclosed environmental impact statement has been prepared for Karst Village #1, a proposed subdivision in Gallatin County, Montana. This is submitted for your review and comments.

Under Montana law, a person or agency has thirty days to submit comments and/or supply additional information. An additional fifteen days may be granted upon specific request to an individual or agency. If you have any comments regarding the environmental impact statement, please submit them in triplicate to this office.

After thirty days, the project will be reviewed in light of comments received that are applicable.

Sincerely yours,

D. G. Wille

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

cc: Ben Wake

July 31, 1973

MONTANA STATE DEPARTMENT OF HEALTH
and
ENVIRONMENTAL SCIENCES

Environmental Impact Statement
Karst Village #1

Pursuant to the Montana Environmental Policy Act, Section 69-6904(b)(3) and Montana's laws regarding subdivisions, Section 69-5001 through 69-5005 which control both public and private water supply and sewage disposal systems in subdivisions, the following environmental impact statement on Karst Village #1 has been prepared by the Environmental Sciences Division of the State Department of Health and Environmental Sciences.

Section 69-5003 states in part, "Any subdivision map or plat filed with the county clerk and recorder shall be subject to sanitary restrictions which must be ordered on or attached to the map or plat by the county clerk and recorder. No building or shelter which necessitates supplying water or sewage or waste disposal facilities for persons shall be erected until the sanitary restriction has been removed or modified. Before any restriction can be removed or modified by the county clerk and recorder, the map or plat of the subdivision must be submitted to the State Department of Health for their approval."

The developers of the Karst Village #1 subdivision have submitted information pertinent to water supply and sewage disposal systems for their development and have requested the department to remove the sanitary restrictions.

History of the Development

The proposed Karst Ranch Subdivision was first brought to the attention of the Department of Health and Environmental Sciences in December of 1970. Individual wells were proposed by the developers for the water supply for the subdivision, and septic tank-drainfield systems were proposed for treatment and disposal of domestic wastewater generated in the development.

In early January 1971, the developers were informed by the department that the proposed water supply and sewage disposal systems could not be approved because insufficient information was provided on the water systems and the preliminary information available on this area indicated that pollution of groundwater and surface water resources was probable due to possible high groundwater conditions and inability to provide adequate separation of drainfields from surface waters.

In April 1971, the developers submitted additional information on soil descriptions and characteristics and groundwater elevations in an attempt to demonstrate the acceptability of the proposed site for subsurface sewage disposal. On May 27, 1971, representatives of the Department of Health and the City-County Health Department conducted a field investigation of the proposed subdivision to obtain on-site information on soils, groundwater conditions, topography, etc. which were felt to be needed to evaluate the subsurface wastewater disposal proposal presented by the developers. The field investigation revealed that subsurface sewage disposal systems could probably be adequately installed on several of the lots in Karst Village #1; however, many of the areas were unsatisfactory due to high groundwater elevations, nearby surface waters, and steeply sloping terrain. During this investigation, the developers indicated they were considering developing the high groundwater areas as park land. The concluding remarks in the field investigation report prepared following the inspection states, "Approval of the use of subsurface disposal on the lots in the subdivision cannot be considered until sufficient information is obtained indicating that proposed systems will be in compliance with State Department of Health regulations. It is, therefore, recommended that a final plat of the proposed subdivision be submitted indicating proposed park land (if any) and the following information for each lot:

1. Possible well location.
2. Possible subsurface sewage disposal site.
3. Maximum elevation of groundwater.
4. Soil percolation rates.
5. Proposed surface and/or groundwater drainage schemes (if any)."

In the spring of 1972, after the lots and roads had been staked out on the subdivision, a plat was submitted to the department outlining proposed location for wells and subsurface disposal sites for each lot. A second field investigation was conducted by representatives of the Department of Health, City-County Planning Department, and City-County Health Department of the proposed well and sewage disposal sites. In general, most of the sites selected for wells and subsurface sewage disposal appeared to be adequate; however, the following problem areas were noted during the investigation:

1. Lots No. 1 and 2 do not have acceptable sewage disposal sites because of the small creek which traverses these lots.

2. Lot No. 10 does not appear to have a suitable sewage disposal site due to the steepness of terrain on this lot. A suitable site could be obtained with a slight easterly adjustment of Wild West Trail. Such adjustment of the road would also provide more adequate sewage disposal sites for Lots 5, 6, 7, 8, and 9.

3. Sewage disposal sites for Lots 17, 50 and 51 are not acceptable because a creek crosses these lots near the proposed disposal sites. It appears that suitable disposal sites can be obtained with a slight adjustment of the wells and sewage disposal sites on these lots and neighboring lots.

4. Lot 19 appears to be located in a high groundwater area. The maximum groundwater elevation for this lot needs to be determined. Groundwater elevation should be determined during high runoff period in June.

5. Lot 20 could also be subject to annual groundwater problems. Groundwater elevations determined on Lot 19 can probably be used to evaluate Lot 20.

6. Many of the proposed well sites are located on steeply sloping terrain. The department recognizes that wells can be drilled in such areas; however, severe scars are usually created in the process of developing an adequate drilling platform on such terrain. It was recommended to the developers that this negative environmental impact be eliminated on as many lots as possible through slight adjustment of the proposed well location.

7. It appeared that considerable cut-and-fill sections would be required for the Wild West Trail in the vicinity of Lots 10 and 12 and Lot 19. It was pointed out to the developers that this potentially negative environmental impact could be reduced by adjusting the road to better fit the terrain in these areas.

During January and February, 1973, the developers submitted an environmental assessment for the subdivision and a revised plat indicating adjustments in road locations and subsurface disposal sites. Even with these adjustments, the department felt that some lots had inadequate drainfield sites for subsurface sewage disposal. At this point in time, it was the developers' desire to obtain restriction removal on the lots meeting minimum department requirements and leave the sanitary restrictions on the lots in question.

On March 21, 1973, a draft environmental impact statement was written on the proposed subdivision. The statement pointed out that not all lots appeared to be suitable for septic tanks and drainfield systems and that sanitary restrictions would remain in effect on these lots. The draft statement was sent to the mass media and to individuals and agencies known to be interested. The resulting response was minimal and the comments generated did not contain data to refute the information obtained by the department over the past two and one-half years. For this reason, the department wrote an informal response to the comments in lieu of a final statement.

The Environmental Quality Council ruled that the department's response was not sufficient to comply with the Montana Environmental Policy Act. Therefore, this final statement has been prepared. The department realizes that a great deal of information obtained during the past two and one-half years was not contained in the draft statement or the response. We are hopeful that the information as summarized in this statement will answer the questions raised concerning this proposed subdivision.

It should be noted that although MEPA requires this department to consider all impacts that could result should the sanitary restrictions be removed, only inadequate water supply or sewage disposal plans are grounds for refusal to remove the restrictions.

Location

The location of this subdivision as noted on Map 1 is located on the west side of the West Gallatin River in the East 1/2 of Section 1, Township 6 South, Range 4 East in Gallatin County. Map 2 illustrates the general layout of the proposed development.

Soils and Topography

As described by the developers, about 40 percent of the land is flat, 20 percent rolling, 25 percent gentle slope and 15 percent steep slope. The Soil Conservation Service soil interpretations map for land use planning and development in the Gallatin Canyon area indicates that the development is located in the Bigel-Hobacker Association and is surrounded by the Garlet-Loberg Association and the Teton-Garlet Association. These associates are described on the map as follows:

1. Biegel-Hobacker Association: Moderately deep and deep, well-drained and cobbly soils on sloping fans and nearly leveled terraces and shallow gravelly soils on low flood plains.

2. Garlet-Loberg Association: Deep, well-drained loamy and clay soils on hilly to mountainous glacial till landscapes.

3. Teton-Garlet Association: Well-drained, moderately deep and deep loamy soils on hilly to mountainous landscapes.

The general soils map does not show the specific kinds of soils at any particular place; however, it does provide general soils descriptions and characteristics needed to generally evaluate suitability of this type of soil for a particular use. Soil map information relating to the use of soils as a wastewater treatment medium is of special interest to the department when considering the adequacy of septic tank-drainfield systems. In a general soils map, soils rated as slight are relatively free of limitations or have limitations that are easily overcome. Soils rated as moderate have limitations that need to be recognized which can be overcome with good management and careful design. A severe rating indicates that the limitations are severe enough to make use questionable. It does not mean that soil cannot be used for a specific use, but it does mean that careful planning and very good management are needed. In some cases, the limitations may not be economically feasible to correct.

For the previously described associationswhich are indicated to be present within the Karst Ranch area, limitations on use of the soil as a septic tank filter field is rated as moderate to severe for the following reasons:

1. Seasonally high groundwater.
2. Excessive slope.
3. Potential groundwater contamination hazard.

4. Slow permeability.
5. Sandy texture.
6. Shallow depth to bedrock.

While these general interpretations provide valuable preliminary information, they do not eliminate the need for on-site investigative work. The 1971 and 1972 field investigations consisted of observations of general topographic features, test holes dug to a depth of eight feet and surface water conditions. Conditions observed on the overall site are generally as described by the soils series information. Some areas are subject to high groundwater conditions (within 30 inches of the ground surface) and other areas are much too steep for development of adequate subsurface disposal. Soils taken from most of the test holes consisted of a fine-grained matrix intermixed with small quantities of sand and gravel. A good deal of organic material was present in the upper layers of the soil. The presence of the fine-grained matrix is further described by the moderate percolation rates (most varied from 10 to 20 minutes per inch) that were determined throughout the area by the developers.

Description of Proposed Development

As proposed to the department, the developer proposes to subdivide approximately 100 acres into 69 lots. Domestic water would be supplied by individual wells and sewage treatment and disposal would be through individual septic tank and subsurface soil treatment systems. Roads in the development are to be graveled, and surface runoff will be handled by overland flow, roadside ditches and culverts. A long list of restrictive covenants is in effect to encourage proper development of the area.

All architectural plans must be submitted to the developers before construction starts. Buildings will not be allowed to remain unfinished for more than one year from the beginning of construction. No trailer houses will be allowed except for a period not to exceed eight months during construction of the permanent quarters.

Domestic animals may be kept on the premises but no more than two pets per household are allowed. Horses must be kept in a fenced area and structures used by horses must be kept at least 25 feet from adjoining property lines.

No water supply or sewage disposal facilities shall be put into use until approved by the State Department of Health and Environmental Sciences or other governing body with jurisdiction.

Utility lines will be placed underground where feasible.

The entire river frontage is to be a park with the only uses permitted being walking, fishing and horseback riding.

Structures nearer than 15 feet to the adjoining National Forest Service boundary are prohibited.

In line with the requirements of the Gallatin City-County Planning Department, the developers propose a second bridge to cross the river to provide access to this development. The bridge would be free-span with steel beams and deck and rails similar to the one now in use on the north end of the property. According to the developers, the bridge abutment would not encroach on the river.

Roads within the development are wide enough to permit emergency vehicles access against the flow of resident traffic. Emergency vehicle travel is another reason for the proposed second bridge.

The developers agreed with the recommendation of the U. S. Forest Service that a green belt free of dead wood material between the National Forest land and private land would be beneficial. They agreed to meet with the Forest Service to discuss this matter.

Impacts Likely to Result from the Development

Concentrating people in the Karst Ranch area will undoubtedly cause some degree of environmental change. Increasing concentrations of people in a relatively natural undeveloped area cannot help but create conditions which, to some extent, suffer from "people pollution". Waste products that are generated such as solid waste materials and sewage, and construction activities such as road building, development of parking lots, excavations for foundations, lawn development, etc. all combine to have some direct negative impacts on the watershed and area aesthetics. Some will say the negative impacts are minor in view of the joy they receive of living and playing in such a beautiful place; however, others will undoubtedly no longer be able to experience the serene feeling that once could be had by gazing across the green meadows and hillsides with a backdrop of mountains.

Some economic and social impacts appear to be unavoidable even though no comments were received from the State Department of Planning And Economic Development regarding this matter. The county, developers, building contractors, local merchants, etc. will undoubtedly realize some economic benefits even though certain services such as schools, hospitals, road repair and maintenance must be provided. "People pollution" will also result in some amount of economic loss for society in general through increased use of the natural resources in the area.

There will be a loss of open space near the edge of a proposed wilderness area. Construction of the subdivision would likely lead to increased use of the Spanish Peaks Primitive Area which is under consideration for wilderness classification.

There will be a direct loss of game range. It is impossible to predict the extent to which this will affect game animals. The Fish and Game Department commented that the development was not on critical winter game range.

The possibility of a house fire would increase the danger of forest fires in the area in the opinion of the Forest Service. The fire danger would be mitigated somewhat by the construction of the proposed roads and bridges. The development will reportedly be served by the Big Sky Volunteer Fire Department.

The presence of horses in a subdivision could lead to unsightly overgrazing and odor problems. While domestic animals on and near the premises will generate some animal wastes which conceivably could find its way into the river with runoff, it is unlikely the amount of animal waste going into the river will be greater than at present. Domestic animals have long used this property for grazing and their waste have had no apparent serious effect on the quality of the river water to date.

As has been previously mentioned, construction activities such as road building, parking lot development, foundation excavation, etc. generally result in increased sedimentation of streams in a drainage. Montana's water quality criteria allow for very small increases above naturally occurring turbidity from waste discharges or land development. However, according to state law, natural refers to conditions or material present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. If increased sedimentation of the river occurs due to improper land, soil and water conservation practices within the proposed subdivision, immediate action will be taken by the department to achieve abatement of the pollution problem.

There may be some dust from the gravel roads and from areas distrubed for road building and home site preparation.

One impact favorable to some and probably equally as unfavorable to others is that construction of the subdivision would open approximately one mile of the West Gallatin River for use by the public.

According to the following information provided by the developer, there should be no danger of flooding the proposed subdivision:

1. The west bank of the river is higher than the east bank.

2. The gradient of the river is quite steep in the subdivision area. The river does not rise over its banks even when runoff is much higher than usual.

3. The site has not been flooded within the memory of Gallatin Canyon residents.

In discussing the flooding potential site with the Department of Natural Resources and Conservation, it was learned that during the June 1971 field investigation, the river flow was approaching a 50-year flow frequency. None of the development was flooded at the time of this field investigation.

Even though concentration of people in one area will have some adverse impact, the population density of the proposed development could be much higher based on density control by area requirements for adequate sewage disposal and water supply systems. Current regulations allow one residence per 20,000 square feet of subdivision area, which is sufficient to allow adequate separation of wells and septic tank-drainfield systems under favorable soil conditions. Thus, state regulation would allow up to 190 residences on this property under favorable conditions for individual water and sewage disposal systems. As many as 400 to 500 residences could be developed should community water and sewage systems be developed. This contrasts to the 69 residents that are visualized within the proposed development. No development in the area would reduce the impact on the natural environment; however, it would be reasonable to assume that the developers would experience an adverse environmental impact.

Since water supply and sewage treatment and disposal systems are under the direct authority of the Department of Health, the paragraphs to follow will discuss the impact and adequacy of the proposed systems.

Water Supply

Existing wells on the property reportedly provide more than enough water for single household use. It appears that adequate water supply is available for the needs of future residents; however, further core drilling is being performed to learn more about the underground water supply. If for any reason some lots could not develop an adequate well, the owner could arrange to haul water to a cistern or possibly share a nearby well. It is realized that drilling of a dry well could be costly to a lot owner; there is no way of assuring in advance that underground water supplies will be adequate in every case. If water demands exceed available water source as ultimate development of the subdivision is approached, it would be possible to develop a community system with storage adequate to supply the demands.

Sewage Treatment and Disposal

The developer has arranged a majority of the lots in the subdivision to provide a sewage disposal site which is not located near an area affected by seasonal high groundwater nor is it located near a surface stream nor is it located on steeply sloping terrain. However, some lots still remain which the department feels do not have adequate subsurface disposal sites. The department is of the opinion that the adequacy of subsurface disposal for these lots must be determined on a lot-by-lot basis. It is very possible that these lots will have to remain undeveloped.

Information compiled by the department from recent research on soil treatment systems indicates that in fine-grained, well-drained soil systems, such as are found on the proposed subdivision, adequately installed drainfields can be expected to remove 85 to 90 percent of the applied dissolved organic matter as defined by the chemical oxygen demand test, 48 percent of the total nitrogen with the soil surface bare, and 85 percent of the total nitrogen with a suitable cover crop, 98 percent of the total phosphate applied on bare soil, 99 percent of the total phosphate on the soil with vegetation. These results relate to soils with an unsaturated depth of four feet. Treatment efficiencies of a soils system increase as the unsaturated depth of soil increases. The areas being approved for subsurface disposal have unsaturated soil depths of eight feet or more. Therefore, treatment capabilities of the soils on the proposed subdivision should be somewhat greater than described above. Vertical movement combined with horizontal movement through the soils should substantially remove all organic materials.

In addition to the above-described removal efficiencies for chemical constituents, an adequately designed and installed drainfield in the proposed development can be expected to provide virtually total removal of all bacteriological contaminants.

The information available to the department indicates that properly installed septic tank and drainfield systems on approved lots will adequately protect the groundwater resource in the area and the West Gallatin River from pollutants. During the review period for the draft impact statement for this project, comments were received asking why the department has not requested that central water supply and sewage treatment and disposal facilities be provided for the subdivision. The position of the department with respect to this matter should be clarified at this time, and it would also seem appropriate to discuss the impacts associated with central collection,treatment and disposal facilities.

First of all with respect to water systems and sewage treatment systems, the department is a regulatory agency--not a design agency. The department has certain minimum standards that must be met, and it is up to the developer and his design consultant to propose systems which meet these minimum standards. After reviewing a proposal, the department must either approve the system or disapprove it with reason. Recommendations can be made by the department, but at no time is the department afforded the luxury of dictating design alternatives. There are times that acceptable solutions cannot be economically provided.

As has been pointed out in the previous discussion, the department has no justification for refusing to allow use of the proposed water systems and sewage treatment and disposal systems on most of the lots in the proposed subdivision. Had the developers proposed to develop high groundwater areas now set aside as park land, the lots consisting of entirely steep terrain, etc., the department could then have requested that other wastewater treatment and disposal alternatives be considered.

It has been vividly pointed out to the department during recent actions reflecting development of stricter water quality standards that economics are a part of the environment, and as such, must be considered by the department in evaluating major actions significantly affecting the quality of human environment. The department realizes the discussion of economics to follow are general in nature; however, a detailed engineering study would be required to provide more detailed cost information. The comments presented on alternative costs will provide general comparisons of the economic impacts of various acceptable solutions for adequate water supply systems and sewage disposal systems.

The impacts to the natural environment associated with development of individual water systems as opposed to community water systems would be virtually the same except for short-term impact realized during excavation for the installation of water mains. The difference in economic impacts with the two types of systems is significant. The developer estimates the cost for a community water system would be $150,000 to $200,000 or approximately $2,500 per lot as compared to an estimated $1,500 per lot for individual wells. A properly designed central water system would provide better fire protection; however, during the initial stages of the development, a central water system designed for an ultimate population would produce a stale water which would be difficult to disinfect due to the minimal amount of water that would be used. Such conditions could exist for several years depending on the rate of development of the subdivision. Individual systems probably would not require disinfection; however, the fire protection provided by individual water systems usually is inadequate.

There seems to be some misconception in the minds of the general public as to the benefits of central sewage collection and treatment systems and misunderstanding of the treatment capabilities of adequate soil systems. Hopefully, the discussion to follow will clear up some of these problems.

A certain quantitiy of sewage is generated each day within a development and no matter what type of system is provided, this quantity of sewage must be treated and disposed of day after day in a manner which does not create a nuisance, public health hazard, or water pollution problems. In other words, prior to some form of final disposal such as discharge to a receiving stream, percolation, evaporation, etc., a specified degree of treatment must be provided to meet set minimum standards. For new sources of pollution such as the Karst Ranch development, state waters with an existing high quality which is better than established water quality standards must be maintained at that high quality unless it can be affirmatively demonstrated to the department that a change is justifiable as a result of necessary economic or social development, and such change will not preclude present and anticipated use of such waters. Any treatment and disposal system provided must also prevent creation of a public nuisance or public health hazard with a certain degree of reliability.

To meet these standards of treatment, developers have the following types of alternatives to consider. Time will not be spent discussing every conceivable alternative and associated impact that can be dreamed up; however, the alternatives discussed should cover the significant impacts of the general types of alternatives available.

The impacts of a central collection system would be the same no matter what type of central treatment and disposal alternative is selected.

Major impacts would include economic considerations and natural environmental degradation created during installation of the collection system. The cost of a complete collection system for the proposed Karst Ranch development is estimated to range from $150,000 to $200,000. Impacts to the natural environment would include unsightly conditions created during construction and a potential for increased sedimentation of the West Gallatin River because of the excavation activity.

Alternative No. 1:

Central collection system with mechanical treatment facilities capable of treating the wastewater to a degree sufficient for discharge to the West Gallatin River.

An advance degree of wastewater treatment providing a better quality of water than obtainable by common tertiary treatment plants would be needed. A treatment facility producing this degree of treatment would:

1. Be extremely complex.
2. Consume a large amount of power for operation of the pumps, aerators, and other equipment.
3. Require significant quantities of chemicals for treatment purposes.
4. Require a large initial capital investment.
5. Require extremely high expenditures for operation and maintenance costs.

The reliability of such complex systems receiving nearly uniform flows would be questionable at best. Periodic discharge of less than adequately treated wastewater would undoubtedly result. Groundwater in the area would be reliably protected from pollution. This type of system could be designed to minimize the impact of the aesthetic value of the area. The costs of this system would prohibit development in most cases should this be the only acceptable alternative available.

Alternative No. 2:

A central collection system utilizing evaporation for final disposal.

This type of system would reliably protect surface and groundwater in the area from pollution, provided that the holding ponds were adequately sealed. Odor nuisance would be a definite problem with this type of system. Control of the odor conditions could be obtained with aeration equipment; however, power requirements again become a significant consideration. A large amount of land would be needed to develop an evaporation system. This would result in a direct economic impact on those developing this land and a large series of sewage lagoons developed on this property would create an additional degradation of aesthetic values of the area. Annual operation and maintenance costs for this type of system would be minimal. It is very possible that total annual precipitation exceeds total evaporation in the Karst Ranch area which would make this an unacceptable alternative.

Alternative No. 3:

Central collection system utilizing a minimum treatment system followed by land disposal.

This type of system is now being proposed and developed for many projects in the state. The system generally consists of an aerated lagoon facility followed by a storage pond with approximately 200 days of holding capacity and an accessible sprinkle irrigation system for final treatment and disposal. An aerated lagoon facility provides partial treatment and a means for control of nuisance odors. The holding pond provides storage for periods when land application cannot be accomplished (for example, when the soil is frozen, snow-covered or saturated during periods of runoff). The sprinkle irrigation system provides for final wastewater treatment through soil treatment systems and disposal by evapotranspiration and percolation.

This alternative provides a solution to community wastewater treatment and disposal which minimizes many of the adverse impacts associated with the first two alternatives. The intial capital investment, while being significant, would not be as much as alternative No. 1. Land requirements will be somewhat greater than alternative No. 1 because of the holding ponds, but considerably less than required by alternative No. 2. Increased crop production in the irrigation area would be beneficial in many cases. If adequate soil and crop conditions are present to provide final treatment, this system would reliably protect surface water and groundwater from pollution.

Some periodic problems could arise as a result of concentrated wastewater disposal from a large development in one area or because of mechanical or operational failures. Operational costs and power requirements for aeration equipment and irrigation pumps would be a consideration; however, such costs would be minimal as compared to the power, chemical and operational costs of alternative No. 1. This type of system would detract from the aesthetics of the area but would not be as noticeable as alternative No. 2. Subsurface soil disposal is generally not acceptable for large systems since it is virtually impossible to provide uniform distribution throughout a large disposal area.

Alternative No. 4.

Individual soil treatment and disposal systems as proposed for this development.

As described in previous sections of this statement, properly designed, installed and operated soil treatment systems provide a reliable, remarkable degree of treatment. This is one very good reason why 1972 Federal Water Pollution Amendments establish a national goal for elimination of discharges to surface waters by 1985. Individual soil systems tend to minimize application rates on an area-wide basis and, therefore, eliminate possible larger scale problems associated with the central systems attempting to provide disposal for large quantities on a specific section of ground as in alternative No. 3. Initial capital investment is as low as possible; power requirements, chemical costs and annual operation and maintenance costs are very minimal. During installation of such systems, the area aesthetics are somewhat disturbed and potential for increased sedimentation of surface waters during the construction period is increased. After the systems are installed, there is generally no detraction from the aesthetic values in the area.

Individual soil treatment systems are now receiving a great deal of criticism from the general public. Soil system failures resulting in nuisance conditions, public health hazards and/or pollution problems have occurred in the past and suddenly individual soil systems are deemed by some to be unacceptable. Rarely are the facts presented as to why the soil system failed. In most cases, a soil system failure results from improper design, operation, maintenance or misapplication. These types of problems should be avoidable for systems installed in the proposed development through inspection procedures provided for in the Gallatin County permit program for individual sewage disposal systems.

Alternatives Available to the Department

1. Remove the sanitary restrictions from the subdivision as submitted. The department feels it cannot remove restrictions on all lots in the proposed subdivision because of conditions described in the previous sections of this statement.

2. Remove the sanitary restrictions on all lots after modifications have been made sufficient to bring all lots into compliance with minimum requires with the department. This would be acceptable to the department; however, the developers have requested that sanitary restrictions be removed from all lots in the development which can be adequately served by the proposed individual water systems and sewage treatment and disposal systems. The department has no other choice than to consider and evaluate this request.

3. Refuse to remove the sanitary restrictions from all of the lots within the subdivision. Based upon the information obtained on the conditions relating to the water systems and sewage treatment and disposal systems proposed, the department cannot justify this action.

4. Remove sanitary restrictions from the portions of the subdivision appearing to meet minimum standards regarding water supply systems

and sewage disposal systems. This is the alternative requested by the developers and is the alternative now being considered by the department.

5. Require that community water and sewage treatment and disposal systems be provided for the development. The data obtained by the department indicates that this action cannot be reasonably justified in view of the development as revised and the requests by the developers to remove restrictions from acceptable lots only.

If the department takes action as described in four above, the lots on which the restrictions are not removed will be required to remain undeveloped until such time as a suitable soil treatment site is provided or an acceptable alternate means for sewage disposal and treatment is devised.

Short-term/Long-term Comparisons

The loss of land to agricultural and game range purposes will have some relatively minor effects. Probably the most serious loss will be the scenic open space adjacent to the primitive area. In short-term, the land is much more valuable to be developed as a subdivision than for any other purpose.

Irreversible Commitment of Resources

Some non-reclaimable materials would be used in construction. The land probably could be reclaimed over a period of time for pasture or scenic use.

There is no data available indicating that removal of sanitary restrictions on acceptable lots within the subdivision will result in any irreversible effects to the quality or quantitiy of surface or groundwater.

Comments

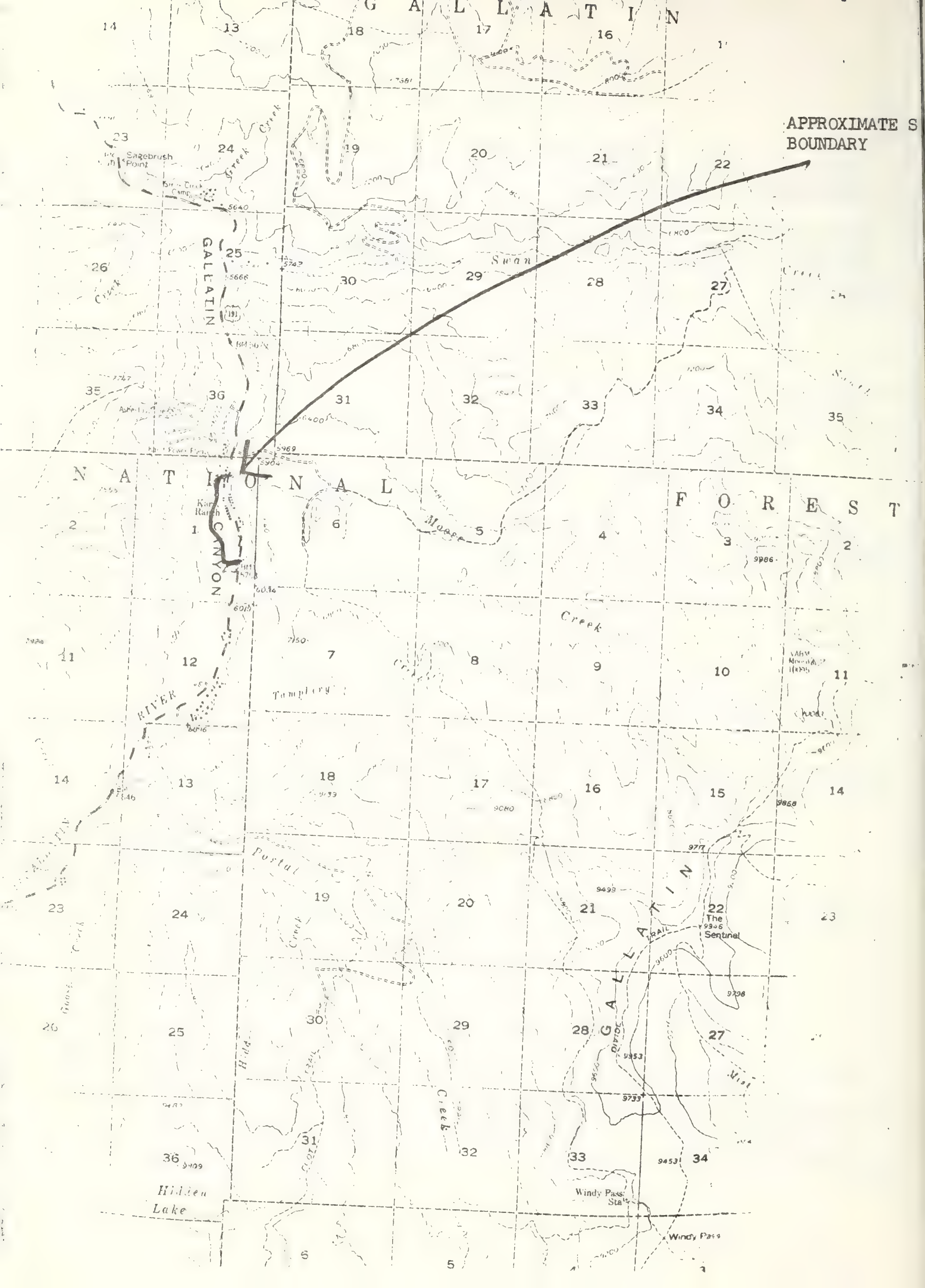
It was noted in the draft statement that sanitary restrictions would be removed on approved lots "with the understanding that the local department of health will supervise the construction of all sewage and water facilities." This sentence is routinely included in impact statements covering subdivisions by request of local health departments. The State Department of Health evaluates subdivisions to assure they meet standards before sanitary restrictions are removed. Several county departments of health have separate jurisdiction and issue permits for individual sewage treatment and disposal installations. The county health departments requested that the need for county supervision of septic tank installations be spelled out in impact statements to assure that developers are aware of county authority.

At this time, it is the opinion of the department that sanitary restrictions cannot be removed from Lots 1, 2, 3, 10, 10A, 12, 16, 17, 19, 20, 49, 50, 51, and 52 in the development as proposed.

Response to the Draft Statement

As noted earlier, response was light, but contained questions sufficiently germane to require preparation of this final statement. An attempt has been made in the foregoing to answer all questions. Copies of correspondence received are attached along with two maps of the proposed development.

This statement was written with information furnished by Donald Zollman, Public Health Engineer; Arthur Clarkson, Public Health Engineer, and the developer, L. W. Spain.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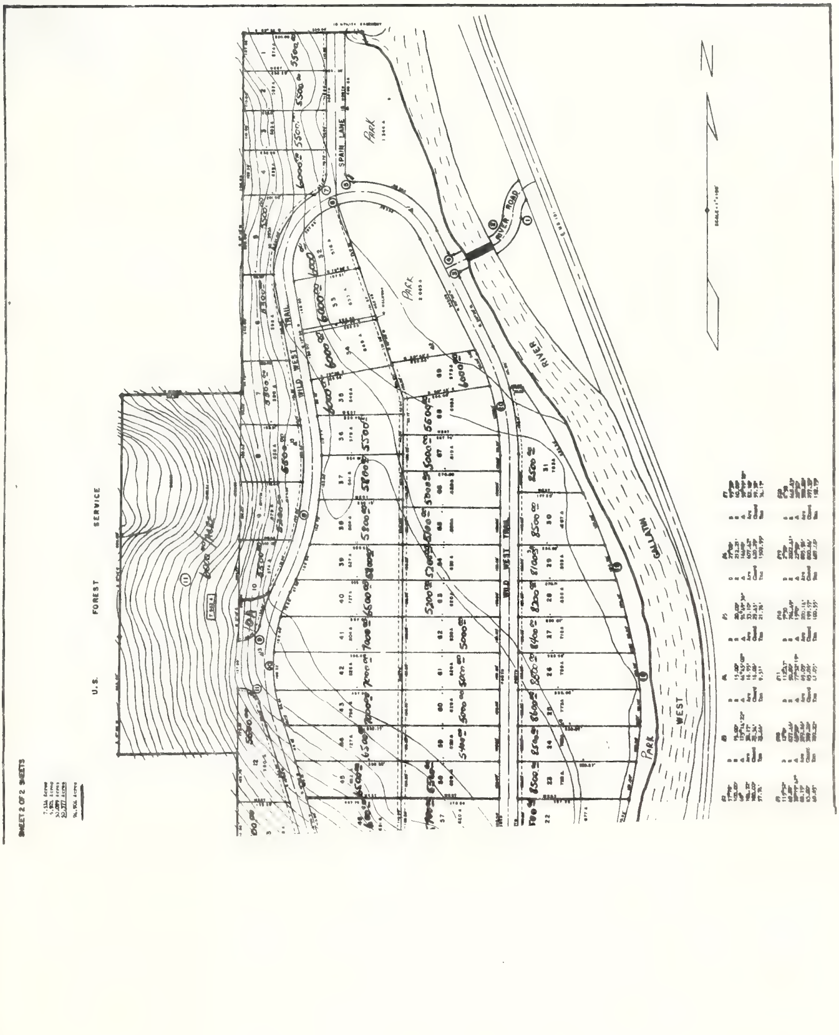
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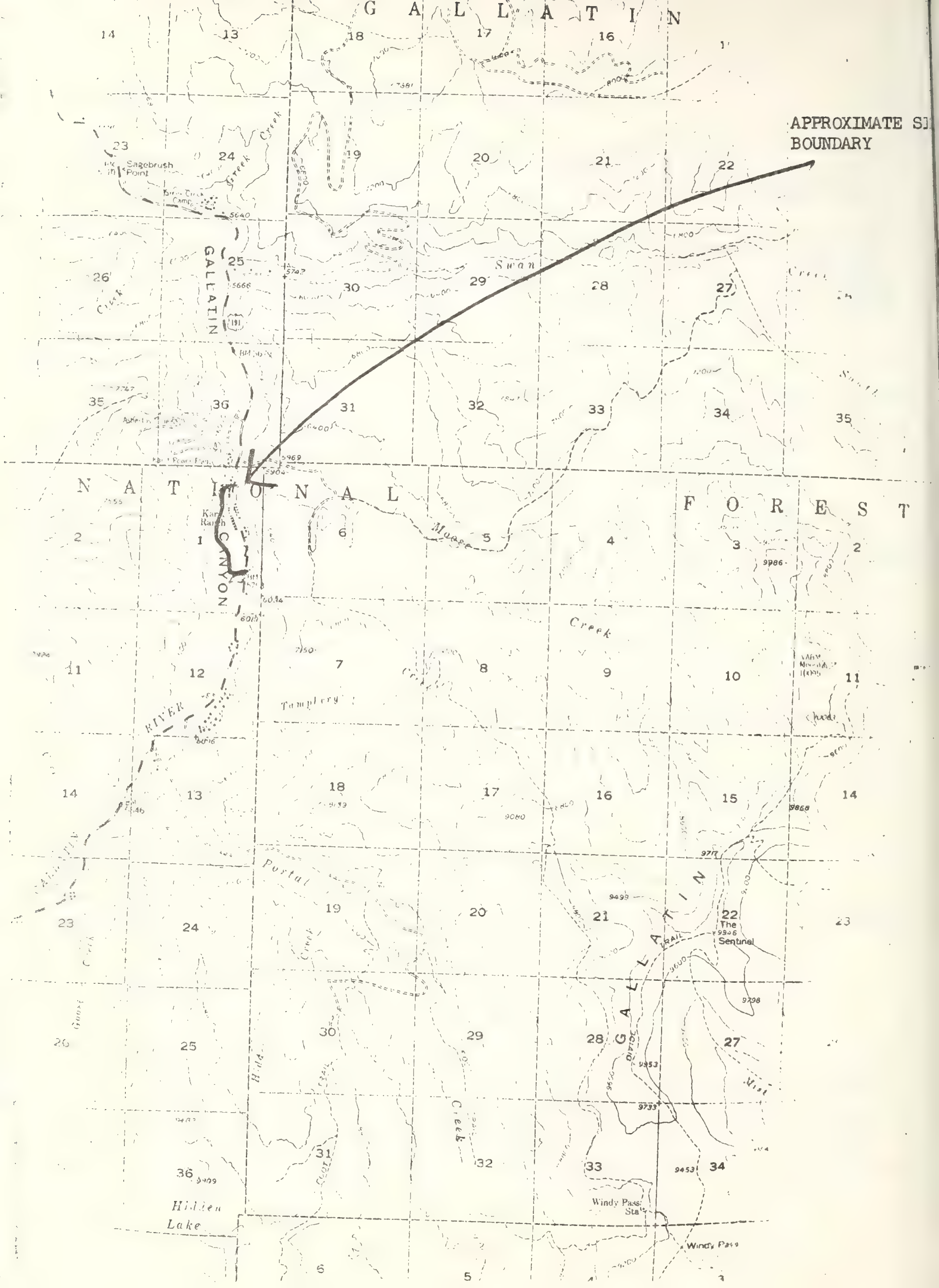
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Karst Ranch
Tamphery
Goose Creek
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5640
5666
5969
5904
6034
6016
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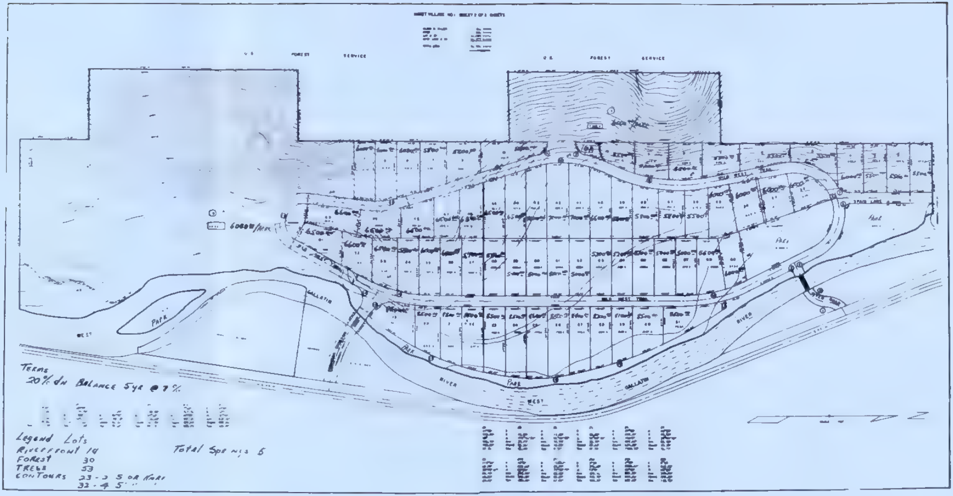
Map 2



Terms
20% dn Balance 5yr @ 7%

Legend Lots
Riverfront 14
Forest 30
Trees 53
Contours 23 - 3 5 or more
32 - 4 5" "

Total Springs 6

STATE OF MONTANA

Environmental Quality Council

FLETCHER E. NEWBY
EXECUTIVE DIRECTOR

CAPITOL STATION HELENA, MT 59601

omas L. Dodge
XXXXXXXXXXXXXX
DESIGNATED REPRESENTATIVE
GARY WICKS

HOUSE MEMBERS
REP. GEORGE DARROW, CHAIRMAN
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SEN. GEORGE McCALLUM

APPOINTED MEMBERS
[illegible]
[illegible]
MR. WARREN [illegible]
[illegible]

April 13, 1973

Dr. John S. Anderson, Director
Dept. of Health and Environmental Sciences
Helena, Montana

Attention: Mr. D. G. Willems

Dear Dr. Anderson:

The draft environmental impact statement on Karst Village No. 1 subdivision appears generally inadequate. For example, there is no map showing the proposed development and the surrounding lands. Intimated impacts on game range are not seriously discussed. The alternatives mentioned are alternatives only to the developer, not to the Department of Health. The Department should discuss its own alternatives, including that of not removing sanitary restrictions.

The canyon area around the proposed development adjoins some of the finest remaining natural landscape in the nation. Since the area has been studied in some detail, it is a decisive omission that the environmental impact statement was not made available to the Gallatin Canyon Study Team at Montana State University. As they could be an important source of information on the proposed subdivision, we request a 15-day extension of time for comments. During this period we will be in touch with the study team and other individuals who might offer relevant input affecting the final decision of the Department.

Sincerely yours,

Fletcher E. Newby

FLETCHER E. NEWBY
Executive Director

FEN/mb

cc: Dan Vichorek
Leroy Spain, Karst Ranch, Gallatin Gateway

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
FEDERAL BUILDING MISSOULA, MONTANA 59801

TELEPHONE: 549-6511
AREA CODE 406

1940
April 26, 1973

Mr. John S. Anderson, M.D.
Director, Department of Health
and Environmental Sciences
State of Montana
Helena, Montana 59601

Dear Sir:

Enclosed are comments concerning the Draft Environmental Statement for Karst Village #1, a proposed subdivision in Gallatin County, Montana.

We thank you for the opportunity of commenting.

Sincerely,

Keith M. Thompson
for: STEVE YURICH
Regional Forester

Enclosure

Gallatin National Forest's Response to Environmental Impact Statement

Prepared for: Karst Village #1, Gallatin County, Montana

Prepared by: State of Montana, Department of Health and Environmental Sciences

These comments are made without benefit of a copy of the sanitary restrictions proposed to be waived nor a map of the subdivision, both of which would have improved the quality of this reply. This reply also goes beyond current State laws in some cases but is offered in the spirit of formulating a quality development.

The proposed development would have an adverse effect on both elk and mule deer who use this area for winter range. The Montana Fish and Game Department will undoubtedly provide more detailed wildlife information. We have observed a herd of 10-15 elk wintering on and near this site and a lesser number of mule deer. Several moose also winter annually on and near the site. The new residents will greatly increase hunting pressure on these animals.

The development will cause additional use of the Spanish Peaks Primitive Area. The closest access point, the trail beginning at Moose Flat and proceeding beyond the asbestos mine to Table Mountain, is lightly used and would probably not be over used as a result of this proposed development. The development will however, add to the use on other nearby popular access points and accelerate the need to restrict the number of people entering the Primitive Area.

A portion of the development is visible from Highway 191.

The proposed Spanish Peak Wilderness boundary is about 1/2 mile from the proposed development's west boundary with the National Forest land in between in an unclassified status. The proposed development will most certainly place importance on maintenance of the adjacent National Forest land in its natural state as open space.

The distance of structures from the National Forest line greatly concerns us. Often private landowners build within several feet of National Forest to in effect increase the size of their lot. The result is lumber piles, ground disturbance, swing sets, etc. on public land. We would hope construction would be at least 50 feet from National Forest land. We recommend that private land should provide the buffer between dwellings and public land.

The Big Sky Volunteer Fire Department would provide structural fire protection to this development. Travel time to the site at best would be 1/2 hour. The threat from wildfire at this site is relatively minor but still a consideration. The threat of house fire is the more important. A house fire during summer months would be a serious threat to the National Forest land to the west. The land rises steeply to Table Mountain three miles distant and 4,000 verticle feet above. A subdivision of this size and distance from fire help has need of an adequate fire suppression water supply. Roads should be surfaced and of a width which will allow emergency vehicle access against the flow of resident traffic. A green belt kept free of dead wood material between the residence and National Forest land would be beneficial.

Finally, we believe the developer should evaluate each lot for sanitation and water prior to approval of the development or sale of the lots. This would avoid the sale of unsuitable lots with the buyer left hanging or seeking suitable disposal land or water on adjacent National Forest land. The developers themselves utilize a spring on National Forest land for water to their cabin developments west of the River some of which are under special use permit from the Forest Service. There is a dry well at one of the cabin sites on National Forest land. We would not favor additional special use permits for water and sewage service to residents of the subdivision. We recommend the developer be responsible for developing water for the subdivision and insuring the feasibility of septic tank drain fields.

The following are specific questions that relate to the Statement.

Topography and Soil

Par. 1. On what information is the statement "soil porosity characteristics would not prohibit the use of septic tanks and drainfields" based? Information available to us indicates something different.

Par. 2. Where does this soil information come from?

Impacts

Par. 1. Do you plan to develop and contaminate the ground water on obvious lots? How does this relate to State and Federal water quality laws?

Par. 3. What is meant by this statement?

Par. 6. Will a pollution problem occur from horses?

Par. 7. What evidence and facts do you base this statement on? Evidence available to us indicates an opposite possibility. How will you monitor water quality to know you meet State and Federal laws?

Irreversible Commitment of Resources

Par. 1. Aren't you irreversibly changing ground water systems, both in quantity and quality, that may affect the West GAllatin River over the long time period? It appears your development proposal will significantly affect ground water quantity and recharge through the wells. Along with this, your proposed ground systems of sewage disposal must, without doubt, change the ground water quality.

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

Helena, Montana 59601

May 3, 1973

RECEIVED

1973

ENVIRONMENTAL SCIENCES
DIVISION

Mr. Don Willems, Chief
Water Quality Bureau
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Don:

As requested, we have reviewed the Karst Village No. 1, a proposed subdivision in Gallatin County. Enclosed for your information is a copy of a memo from our regional office concerning that review. As you can see, there are going to be some problems.

We are particularly concerned with the plan to concentrate approximately 69 septic tanks on the 100 acre tract in question. I hope you will be able to insure that the sewage disposal system ultimately decided upon will prevent river contamination.

Sincerely,

JAMES A. POSEWITZ, ADMINISTRATOR
ENVIRONMENT AND INFORMATION DIVISION

JAP/sd
Enc

cc: Fletcher Newby
Don Bianchi

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

Office Memorandum

TO : Wesley Woodgerd Attn: Posewitz **DATE**: May 1, 1973

FROM : LeRoy Ellig By : Don Bianchi

SUBJECT: Environmental Impact Statement - Karst Village #1

I reviewed the proposed subdivision with Mr. Leroy Spain, one of the owners. Basically, the subdivision seems to be well planned and public access to approximately 1 mile of the Gallatin River will be beneficial to fishermen and other recreationists. Also, the large number of homes (69 lots) on this 100 acre tract, all using septic tank sewage disposal systems, could create a river pollution problem. In fact, most of our experience with septic tanks near rivers shows this type of pollution is likely.

When the second bridge is constructed, no encroachment into the river channel with the bridge abutment should be allowed. This should be included in the permit.

There will be a direct loss of habitat for deer, elk, moose, bear and mountain sheep because of this subdivision.

Additional access to the Spanish Peaks Primitive Area, furnished by the subdivision, will also have some impact.

Although this particular subdivision is not on critical wildlife winter range, other private holdings in the Gallatin Canyon, if subdivided, will greatly reduce the wildlife carrying capacity of this area.

I have no further comments on this subdivision proposal.

DB:plj

Montana State University
Bozeman, Montana 59715 Tel. 406-994-3331

rtment of Earth Sciences
e of Letters and Science

May 15, 1973

RECEIVED
[illegible] 1973
ENVIRONMENTAL SCIENCES
DIVISION

Mr. Daniel Vichorek
Technical Writer
Department of Health and
Environmental Sciences
Helena, Montana 59601

Dear Mr. Vichorek:

Thank you for your letter of May 10, enclosing the Environmental Impact Statement on Karst Village No. 1.

This was the first I had seen of it, and in checking with some other members of the Gallatin Canyon study team I have so far contacted none who have seen it. This will account, I believe, for lack of reaction.

I judge it is too late for this letter to be of much use in the decisions regarding the Karst development, but I'm going to react as best I can. In so doing I will not be speaking for the Gallatin Canyon study team but only for myself.

1. Since there are no maps indicating the relationships of the proposed lots to the soil, water table, slope, and geology, there is obviously no way for me to judge the soundness of the development in this regard.

2. The first paragraph under Impacts says, "There are many lots where the use of septic tanks and drain fields would result in the contamination of the ground water." This sentence begs for an action proposal. What does the developer plan to do under these circumstances? Deny building? Use a different sewage disposal system? Go ahead and contaminate the ground water, anyway?

3. Under Alternates to the Proposed Action, the first alternate is "Leave the land as it is." The second is "Use for a trailer park or other commercial development." Then he says, "The developer stated that the use proposed is the most economical for him and the least damaging to the environment." Is the proposed development really less damaging to the environment than leaving the land as it is? If so the developer will have established a new standard.

4. The proposed development is right on the border of an area up for Wilderness classification. Experience indicates that unless what goes on outside the wilderness boundary is harmonious with the purposes of the wilderness, the result is unhealthy for the wilderness area. This development is definitely out of harmony with the wilderness area and hence to my mind constitutes a source of future border conflict and trouble.

These are my personal reservations to the development as proposed in the Impact Statement. Thank you for the opportunity to comment.

Sincerely yours,

Charles C Bradley

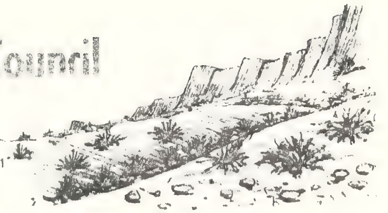
Charles C. Bradley
Professor of Geology

CCB/kab

STATE OF MONTANA
Environmental Quality Council

CAPITOL STATION · HELENA, MT 59601

Thomas L. Judge
[redacted]



May 30, 1973

RECEIVED
1 1973
ENVIRONMENTAL SCIENCES DIVISION

Dr. John S. Anderson, Director
Department of Health and Environmental
Sciences
Helena, Montana 59601

Attention: Dan Vichorek

Dear Dr. Anderson:

This letter is in reference to comments and Departmental replies on the Karst Village #1 subdivision draft impact statement. You have asked us to report whether the information submitted is sufficient in lieu of a final environmental impact statement. We do not believe that the material submitted is in the proper form or of sufficient content to qualify as a final environmental impact statement. This is especially true given the substantial content of critical review received by the department. In addition, there is enough substance to the various agency and citizen comments to merit the preparation of a final.

Specifically, the statement still does not analyze the comparative costs and risks of permitting individual water supply and sewage disposal works as opposed to collective systems. Forest Service correspondence indicates there are soil porosity difficulties. Nor does the statement explore in any detail the possible beneficial impacts of recommending a reduced number of units on the affected acreage. The department's inadequate consideration of alternatives to the proposed action is not helped by statements which allege that the proposed development would have a lesser impact than others "that come to mind." It is easy to dredge up a list of potential environmental horrors for various commercial developments in areas similar to Karst. However, this is no substitute for full consideration of the agency's alternatives in reviewing a proposed project. In the final impact statement you should also assess possible difficulties from periodic flooding by the Gallatin River.

The Department has been notably lax in properly distributing copies of environmental impact statements to affected parties. I hope that in the future copies will be circulated to groups such as, in this case, the Montana Wilderness Association, the Sierra Club, and the Gallatin Sportsmen. The Environmental Quality Council is developing a list which may be helpful in this regard.

I look forward to receiving your final statement.

Sincerely yours,

Fletcher Newby
FLETCHER E. NEWBY
Executive Director

FEN/cjb

[illegible] ✓

The Big Sky Country

MONTANA STATE HOUSE OF REPRESENTATIVES

THY BRADLEY
TRICT NO. 11, GALLATIN AND
PARK COUNTIES
ZEMAN, MONTANA 59715
ITTEES:
TURAL RESOURCES, VICE-CHAIRMAN
UCATION
CAL GOVERNMENT

May 30, 1973

Dr. John Anderson, Director
Department of Health and Environmental Sciences
Helena, Montana

Dear Dr. Anderson:

I would like to comment on the Draft Environmental Statement of the Department of Health and Environmental Sciences regarding the request of Karst Village #1 developers to remove sanitary restrictions. I will start by explaining my most serious objections to the removal of sanitary restrictions at this time -- namely, that I do not think the Department of Health is in compliance with the Montana Environmental Policy Act -- and then discuss some lesser, but nevertheless, important, objections.

Section 69-6504 (b)(3)(iii) of MEPA provides that all agencies of the state shall include in their impact statements a detailed statement on "alternatives to the proposed action." The draft statement submitted by the Department clearly overlooks this responsibility. Page 3 lists the alternatives of leaving the land as it is, and using the land for a trailer park or other commercial development. But the Department has failed to assess its alternatives concerning this particular development. What about the alternative of fewer than 69 lots on the 100 acre tract? What about the alternative of a centralized sewage system or water system instead of individual units? The Department admits there are problems of sanitation on some of the lots, yet none of these alternatives are discussed.

I would further quote the policy statement of MEPA, Sec. 69-6505 (b), which states that the legislative assembly recognizes that each person shall be entitled to a healthful environment. It seems to me that the Department is relinquishing its authority and responsibility of assuring the public of healthful water. On one hand the Department admits to the problem which septic tanks could cause under certain existing conditions, yet on the other hand the Department is ready to turn the matter over to the local health department, and states that there are no plans to monitor the water quality. It is clear that the public is being given no assurance that the water quality will meet state and federal standards.

Another serious problem with the environmental draft is its information which conflicts with statements from the Fish and Game Department and the U.S. Forest Service. Page 1 of the Department of Health's comments states, "This department believes the law requir 100 foot separation of septic tank drainfields and surface water is adequate to prevent pollution." Mr. Ellig of the Fish and Game Department comments, "Most of our experience with septic tanks near rivers shows this type of pollution is likely." Mr. Yurich of the Forest Service comments, "On what information is the statement 'soil porosity characteristics would not prohibit the use of septic tanks and drainfields' based? Information availabl to us indicates something different."

I do not need to point out that this is a serious disagreement. But in spite of this conflicting information the Department of Health states at the end of its comments that it will "remove the sanitary restrictions unless information is received indicating the probabilit that illegal water pollution would result from removal of the restrictions." With two other major agencies disagreeing with the findings, this is no time to assume innocence on the part of the developer. Surely the action of removing the restrictions should not be taken until further information resolves the question, or precautions taken by the developer resolve the conflict. The public should not be put in the position of having to wait until after the fact to see which agency is correct.

Lesser objections to the Environmental Draft and the Comments include the following:

1. Page 2 of the draft states, "There are many lots where the use of septic tanks and drainfields would result in contamination of the groundwater." The Department then presents its own answer to this quandary by saying that the "overall high quality of development required by developers in covenants would seem to eliminate most potential impacts." This is purely and simply another case of relieving the developer of all responsibility of the initial stages of development, and taking his word on sanitation standards in spite of the fact that they will be left to the home-builder. It is my strong conviction that the Department of Health should hold the Karst developers responsible for more adequate sanitation precautions before the development is approved and sanitation restrictions are removed.

2. Page 2 of the draft states, "Water pollution should be avoidable if subsurface drainfields are limited to approved lots." What assurance is there for the public that this will be done, once the sanitary restrictions are removed?

3. Page 3 of the draft says it is "fortunate that the development planned is of a high quality, calculated to maintain the environment at the highest level compatible with a residential area." By whose judgement was this statement made? Surely it is obvious even to a layman that a development of 69 lots on 100 acres, with individual sewage and water facilities, is by no means the highest environmentally compatible level of a residential area.

4. Page 3 of the draft says, "Since the suitability of lots for subsurface drainage facilities must be determined lot by lot, the State recommends removal of the sanitary restrictions with the understanding that the local department of health will supervise the construction of all sewage disposal and water supply facilities." I am curious to know if it is only in perfect instances, when all lots are admittedly suited for septic tanks, that the Department of Health keeps its supervisory responsibility? In addition, I am wondering on what authority the Department is delegating its responsibility?

5. Page 3 of the comments states, "If water degradation did occur, it could be remedied by abandonment of the site." Is this not a bit severe? Who pays for the mistake? Would this not be a case of fraud to lot owners and river users? I think we can do better than this.

Thank you for the opportunity to comment on this matter.

Sincerely,

Dorothy

Dorothy Bradley

cc: D. G. Willems
Fletcher Newby

The Montana Wilderness Association
Route 1, Box 1410
Hamilton, Montana 59840

June 8th,1973

②

Dr. John Anderson, Dir.
Dept. of Health and Environmental Sciences
Helena, Mt.

Dear Dr. Anderson,

I had to request a copy of the Dept. environmental impact statement for the Karst Village# 1,so my remarks are later than was requested.

The Environmental Impact Statement prepared by the Dept. of Health and Env. Scineces for the Karst Village # 1 gives rise to many misgivings about the intent and depth of the process.

In order for the Dept. to make a statement of substance about the state of the drainage fields on the proposed development it must have adequate soils and drainage information available to it. Where is the evidence of this information and who prepared it? If detailed knowledge is not available, then the impact statement,so far as ground water and drainage are concerned,is a farce.

Nothing is mentioned about the impact that that many units on that amount of land will have on each other. We are all aware of urban slums, but what is to prevent rural slums from developing from such a concentration of people with all their animals, machines, contrivances, etc? Are the units, as divided, adequate to prevent the "rabbit warren" atmosphere? No plans showing prospective division were with the Statement.

The field of the drainage problem is not covered to my satisfaction. Domestic animals may be kept on the premises but no mention is made of how animal waste is to be disposed of. Culverts and roadside ditches are mentioned but will they not drain ultimately into the river? No mention is made of this impact which I consider of importance to the quality of the Gallatin River.

The statement says that "There are many lots (emphasis mine) where the use of septic tanks and drainfields would result in contamination of ground water." Who will determine which these lots are ? What will be allowed on them? What will be the impact on neighboring lots?

The whole statement leaves one with the feeling that the inspection of the project is only cursory at best. If this is the approach which the Department of Health and Environmental Sciences is planning to pursue in this field of such vital importance to Montana at this time then I suggest that it take down the tent and turn this duty of environmental watchdog over to a department which will be dedicated to demanding the highest quality of development standards, which will be dedicated to maintaining our quality of enviroment, and which will not be blinded or enthralled by the sirens' songs of "development is progress"

Sincerely,
Doris Milner
Doris Milner, President

cc: Newby
Judge
Wichorek

LeRoy Ellig June 8, 1973

Jim Posewitz

Further Information - Karst Village No. 1

Enclosed is a copy of a letter from the Department of Health and Environmental Sciences regarding comments made on Karst Village No. 1. Would you please supply the additional information being requested - specifically in regard to comments that were made on the Karst Village problem.

I believe in responding to the general question posed by Mr. Vichorek we should acknowledge that the 100 foot separation is probably adequate where soil conditions are ideal for septic systems; however, this rule of thumb cannot be applied across the board as it is now, since many alluvial deposits presently attractive for subdivisions are far from ideal soil types for septic systems. For example, the soil scientist with the Forest Service on Rock Creek near Missoula has stated that septic systems on the alluvial deposits of Rock Creek represent little more than direct pipes to surface water flows.

Your response to Mr. Vichorek's questions would be greatly appreciated at your earliest convenience.

JAP/sd

bcc: √Dan Vichorek

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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

2-27-74

February 20, 1974

Governor Judge, Helena
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Department, Courthouse, Bozeman
Gallatin National Forest Headquarters, Bozeman
Bozeman Chronicle, Bozeman
Fletcher Newby, Environmental Quality Council, Helena
Montana Fish and Game Department, Helena
Department of Intergovernmental Relations, Division of Planning and Economic Development, Helena
Karst Guest Ranch, Box 1055, Bozeman
Student Environmental Research Center, Room 212, Venture Center, Missoula
Montana State Library, Helena
Mike Baker, Box 843, Big Sky
Keith M. Thompson, U. S. Forest Service, Federal Building, Missoula
Art Hutchinson, Lee State Bureau, c/o Independent Record, 317 Allen, Helena
Dorothy Bradley, House of Representatives, State Capitol, Helena
Raymond Hurley, Joe Brooks Chapter, Trout Unlimited, Box 271, Livingston
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Perry Nelson, 526 North Bozeman Avenue, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Ric Graetz, Box 894, Helena
Ken Porter, 502 South Grand, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman
James Goetz, Bridger Canyon, Bozeman
City-County Health Department, Box 639, Bozeman

Ladies and Gentlemen:

The attached document has been issued at the advice of the Environmental Quality Council, to supplement draft and final environmental impact statements prepared under the Montana Environmental Policy Act for Karst Village No. 1 in Gallatin County.

The Environmental Quality Council recommended the publication of this supplement to inform the public of information that has become available since publication of the final impact statement on August 6, 1973.

All comments regarding this supplement should be mailed to me within 15 days from the date on this letter. If no persuasive detrimental information is received by the end of the 15-day period, this department will remove the restrictions with the exceptions noted in the supplement.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

DV:vf
cc: Ben Wake

SUPPLEMENT TO THE FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
KARST VILLAGE NO. 1

Water Supply:

Three wells have been drilled on the land, each with an adequate supply of groundwater. Well No. 1 on Lot 25, as shown on the attached map, is 50 feet deep with the static water level 23 feet below the surface. Production is 40 gpm.

Well No. 2 on Lot 8 is 60 feet deep with the static water level 40 feet below the surface and production at 10 gpm.

On Lot 15, Well No. 3 went down 140 feet with the static level 65 feet below the surface. Production is 5 gpm. The well logs are as follows:

No. 1

Depth (ft.)		Formation
From	To	
0	5	black topsoil
5	23	dirty, coarse sands, gravels and boulders
23	33	dirty, coarse sands and gravels
33	38	clean sands and gravels
38	50	cemented sands and gravels

No. 2

Depth (ft.)		Formation
From	To	
0	24	clay overburden
24	46	coarse, dry clay, rocks and boulders
46	60	sands and gravels

No. 3

Depth (ft.)		Formation
From	To	
0	20	coarse, jagged boulders
20	70	crumbly, rotten granite
70	78	gray shale
78	101	laminated shale and granite
101	115	dirty, sandy, decomposed granite
115	140	granite

The driller was not certain whether the granite between 115 and 150 feet was bedrock or a large granite boulder.

Floodplain Information

The 100-year floodplain was determined by the Floodway Management Bureau as shown on the attached map. Two lots, 19 and 20, could be seriously affected by floods reaching the expected 100-year level. All other lots appear to have room to accommodate wells and drainfields above the flood level.

Solid Waste Disposal

A commercial trash hauler has agreed to remove and dispose of all solid wastes from this development.

Questions from the Public

We will attempt in this section to deal adequately with the questions raised by the public following publication of the final statement.

1. Sieve analyses

Sieve analyses were not performed, but samples are on hand should they be required. Material from each of the well drill holes is available and visual review of the material indicates the material is acceptable for our needs. (Soil analysis was made on samples as indicated by the attached soil sample laboratory test results.)

2. Dye Tests

Dye tests are not practicable unless there is a direct connection between a sewer system and a body of water. Soil systems tend to absorb the color material in the dyes and unless there is a direct connection between the point of insertion of the dye and where the sample is collected, no results will be obtained. Groundwater movement may be relatively slow and could be at the rate of one foot a year. Therefore, any movement of groundwater containing dye could take considerable time to be detected if the dye were not strained out.

3. Water potability

Three analyses indicate the chemical quality of the water to be adequate at this time. Bacteriological tests cannot be made until a well has been completed and disinfected. Treatment can be provided wherever there is an indication of bacteriological contamination.

4. Bedrock

The three well logs included above indicate that bedrock is below 50 feet. Bedrock at this depth should cause no concern for the development.

5. Wells and septic tanks

Some respondents to the final statement said that the soil was too porous and impervious to be capable of absorbing sewage. Sewage is not absorbed by soils in any case, but is filtered through the soils and enters the groundwater table. The finer the soil structure, the more complete is th filtration of the smaller particles. As more sewage passes through the soil, a zoogeal film is built up, decreasing the size of the soil pores and straining out still finer material. There are fine soil particles in the soi system, and properly sized, constructed and maintained sewerage systems shoul provide adequate treatment.

6. Primitive area degradation

It is impossible to say whether the adjoining forest and primitive areas will be degraded by people pollution as a result of this development. This matter was discussed on Page 6 of the final statement.

7. General Allegation of Water Pollution Potential

Every effort is being made to prevent water pollution on this project. In view of the established character of the soils on the development, the depth to the water table, the topography and the planned density, it appears that compliance with the applicable regulations regarding sewage disposal and water supply will be adequate to prevent contamination of groundwater and the West Gallatin River.

Drainfields will be installed in the upper one foot of the soil and special care is being taken in their location on the lots.

Other matters that appear to require clarification are as follows:

1. A 50-year flood is expected to occur once every 50 years. A 100-year flood is expected once every 100 years.

2. The 100-year flood elevation indicates a flow of 7,000 cubic feet per second, with the 50-year flood at 6,000 cfs.

3. The 1971 flow in feet per second has not been determined. The regulations call for the 100-year flood flows and that figure has been determined.

4. Data are available to support our claim that the soils are fine-grained and well drained. (See attached soil data sheet) Fine-grained soils that are well drained are suitable for septic tank disposal. In fact, the basic information on septic tanks in the early days looked for the higher percolation in which there was a rapid dispersion of the water into the soils. The finer the materials, the better filtration that takes place to collect the organic matter suspended in the sewage, which then creates more pores to further collect smaller particles.

5. Sieve analysis--already discussed.

6. Alluvial fans, landslides, river-laid gravel deposits and similar geological features should not affect the operation of sewer and water facilities.

7. The depth to bedrock is unknown unless the granite found at 115 feet in Well No. 3 is bedrock. The water table ranges from 65 feet below the

surface on Lots 15 to 23 feet below on Lot 25. Soil studies made earlier in the year indicate groundwater at about 10 feet in area near Lot 25. The direction of groundwater flow is assumed to be from the hills toward the river and parallel to the river. The subsurface material on Lot 15 is relatively coarse with jagged boulders underlain by coarse sand and gravel. Permeability of materials on lots mentioned appears to be very good.

8. Seismic tests often give erroneous results in a tight valley. Therefore, it was decided to use the actual drilling of test wells to determine if bedrock was within a reasonable distance from the surface. The wells determined that bedrock is deep enough to be of no consequence to the development. It appears the bedrock is granite which is not a good aquifer. The cost of drilling through such material is negotiable between the driller and the land owner. The materials above the 115 foot level should not present any problems to the driller, as they are easily penetrated by a drill rig.

9. Specific data on each lot for well locations, subsurface sewage disposal site, maximum elevation of groundwater, soil percolation tests, proposed surface and/or groundwater drainage schemes is shown on a typical plot plan with notes as prepared by the developer. The developer insures that compliance will be made with Circular 332 and Circular 12 of the State Department of Health and Environmental Sciences. Surface drainage systems have been installed between Lots 1 and 2 with a culvert under the road to carry the water to the river. These systems drain a small spring located above Lots 1 and 2. A second channeling of the watercourse occurs through Lots 17 near the boundary between Lots 49 and 50 and the boundary between Lots 51 and 52 continuing on to the river. This surface drainage carrying water directly to the river may change the whole percolation picture on those lots where the water previously had been spreading out and pooling instead of flowing directly away from the area.

10. From the data submitted and the test well drilling, it appears that a satisfactory source of water supply can be obtained on the lots and sufficient water is also available on the lower terrace lots to serve as a source of multiple-lot water supplies. There is a possibility that as the development progresses, a community water system can be constructed in the oval roads with a source of water being located in lots along the river similar to the test well on Lot 25. There is ample water at sufficient depths to provide a source for a community type water system.

Proposed action

Fifteen days after issuance of this supplement, the department will remove the restrictions from all lots known to be satisfactory for installation of wells and septic tank drainfields.

Lots 1 through 18, 19, 20 and 49 through 53 will remain under restriction until adequate sites can be located on each for water and sewer facilities. Installation of these facilities must be supervised on all lots by the county sanitarians.

Lots 1 through 18 will remain under restriction because the steepness of the land makes it difficult to reestablish a plot plan for the sewer and water facilities without an on-site lot-by-lot review. Lots 19 and 20 remain restricted because of the floodplain incursion. Surface drainage may cause high groundwater on Lots 49 through 53. Some of the lots under restriction may be suitable for development if sold in combination with adjacent lots.

Restrictions may be removed from those lots in question whenever the department is convinced adequate water and sewer facilities can be installed.

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

Kirkwood

STATE DOCUMENTS

August 29, 1973

AUG 30 1973

Board of County Commissioners, Courthouse, Bozeman
City-County Planning Department, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Environmental Quality Council, Helena
Fish and Game Department, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Howard A. Micklewright, Kirkwood Ranch, West Yellowstone
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Ken Porter, 502 South Grand, Bozeman
Ric Graetz, Box 894, Helena

Gentlemen:

The enclosed draft environmental impact statement has been prepared for Kirkwood Shores, a proposed subdivision in Gallatin County. This is submitted for your review and comments.

Under Montana law, a person or agency has thirty days to submit comments and/or supply additional information. An additional fifteen days may be granted upon specific request to an individual or agency. If you have any comments regarding the environmental impact statement, please submit them to this office.

After thirty days, the project will be reviewed in light of comments received that are applicable under Montana law.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:AWC:sh
Enclosure
cc: Ben Wake

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

August 29, 1973

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Kirkwood Shores,
a proposed subdivision in Gallatin County

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); the act controlling both public and private water supplies and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 69-4827, the following draft impact statement is prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences concerning Kirkwood Shores, a proposed subdivision in Gallatin County, Montana.

Location:

This subdivision is located in Section 25, Township 11 South, Range 3 East, MPM, Gallatin County, Montana. The subdivision is further located on the northwest arm of Hebgen Lake south of Highway 287 approximately 18 miles northwest of West Yellowstone. The attached map shows the location of this subdivision.

Description of the Proposed Development:

The owners, Howard and Jerrine Micklewright, propose to divide part of the Kirkwood Ranch consisting of an area of 15 acres into 33 lots as a recreational type development. The water supply is to be provided through a central water system, the plans for which have been reviewed by the department; and it appears that adequate water will be available for this development.

Sewage disposal will be by means of septic tanks and subsurface drainfields which should be acceptable in this area.

Topography and Soils:

Soil profiles were determined by digging a trench 20 feet long, 20 feet deep, and 10 feet wide with a drag line in July 1973. The nature of the soil was found to consist of 2-1/2 feet of topsoil and 17-1/2 feet of sand, gravel, and clay. No water was encountered in any of the test holes. A water well was drilled on the property, and the static water level, first groundwater, was encountered at 24 feet below the surface.

Percolation tests were run throughout the area indicating a percolation rate of from 2 to 2-1/2 minutes for the water to fall one inch.

Impact of the Proposed Development:

The principal impact will be to increase the population density during the summer months. The area adjacent to this development is already developed into summer homesites and being used for recreational purposes as dude ranches and motels. The proposed development will conform to existing patterns of land use in this immediate area.

Probable Adverse Environmental Effects:

There is very little probability of adverse environmental effects being created by this development. The land is and has been used for recreational purposes over the last 15 years. The only major difference is the fact that this land is being sold to individuals for the erection of summer homes and the ownership will be divided among 30 or more families whereas in the past, the land has been under the ownership of one family.

Alternates Considered:

1. Remove the sanitary restrictions as requested.
2. Not remove sanitary restrictions and keep property in the condition it is at the present time.
3. Remove sanitary restrictions subject to certain conditions.

Relationship between Long-term/Short-term Uses of Environment:

The productive characteristics of this parcel are minimal due to the location, soil characteristics and adjacent development. The productivity will not appreciably decline upon implementation of the owners' projected improvements.

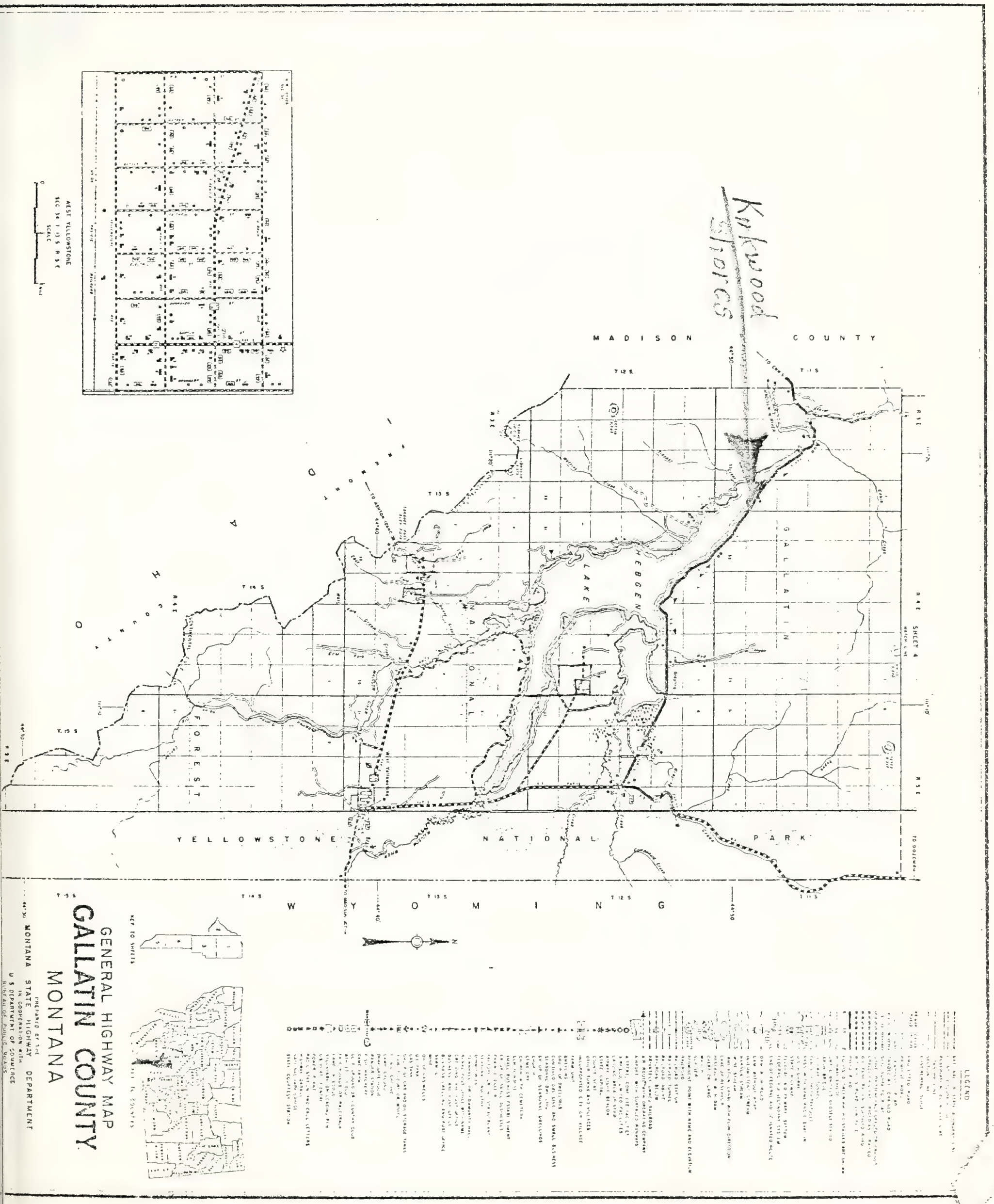
Any Irreversible or Irretreivable Commitment of Resources:

The irreversible, irretreivable use of resources will be the same as in any development where building materials, roads and other construction materials are utilized. The area is such that in all probability, if man should abandon the area at some future time, the land would soon revert back to its original state of vegetative cover.

Comments and Recommendations:

This subdivision has been thoroughly reviewed by the local planning authority and the county officials and has been approved by the local governing bodies. There appears, from the preliminary review of the information submitted on this development, that the proposed methods of water supply, sewage disposal will be satisfactory and will, in all probability, cause no adverse effects on the environment. This office is considering the removal of sanitary restrictions from the property if no adverse comments are received within the 30-day period that the draft is being circulated.

This statement prepared by A. W. Clarkson, P.E., Engineer, Water Quality Bureau from information submitted by the developer, Howard Micklewright, and information obtained from the City-County Planning Board of Gallatin County.



GENERAL HIGHWAY MAP
GALLATIN COUNTY
MONTANA

PREPARED BY THE
MONTANA STATE HIGHWAY DEPARTMENT
IN COOPERATION WITH
U S DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

STATE DOCUMENTS
1-31-74

January 29, 1974

Board of County Commissioners, Courthouse, Philipsburg
City-County Planning Board, Courthouse, Philipsburg
J. P. Cunningham, M.D., County Health Officer, Philipsburg
John Peterson, Sanitarian, Courthouse, Anaconda
Environmental Quality Council, Helena
Fish and Game Department, Helena
Student Environmental Research Center, Room 212 Venture Center, Missoula
✓Montana State Library, Helena
Knight, Dahood, Mackay & McLean, P. O. Box 727, Anaconda
Robert Johnson, 221 East Commercial Avenue, Anaconda

Gentlemen:

This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of this statement. An additional 15 days is available on request.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: D. Vichorek through Ben Wake

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

E.S. 73/491 January 29, 1974

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR LAKEVIEW SUBDIVISION

a proposed subdivision in Granite County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 5005; and the act to control water pollution, Section 69-4801 through 4827, the following statement was prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences for Lakeview Subdivision, a proposed subdivision near Georgetown Lake, for which a submittal has been received requesting removal of the sanitary restriction which has been imposed upon the property.

Location

This project is located approximately 15 miles south of Philipsburg, Montana along Blodgett Gulch in Section 26, Township 5 North, Range 14 West, MPM, Granite County, Montana. The north boundary of the property is about 2,000 feet from Georgetown Lake (see attached map).

Description of proposed project

The owners would divide 103 acres into 93 residential lots which range in size from 28,809 to 100,255 square feet. The fundamental design of the proposed subdivision is a rectangular grid. Roads are to be constructed according to Granite County road specifications with variances to be granted as to width and other standards as necessary.

Once the roads are constructed and are accepted by the Board of County Commissioners of Granite County, they shall be maintained from that time on by Granite County. In consideration for construction of the roads by the owners, the Board of County Commissioners of Granite County shall waive forever all lands required to be set aside as parks and playgrounds or cash donations in lieu thereof.

The use of drilled wells for domestic water supply is proposed. Logs of four drilled wells have been submitted as evidence that a supply of potable domestic water can be developed on each and every lot. Following is a tabulation of pertinent data:

WELL LOCATION	DEPTH OF WELL	PRODUCTION IN GALLONS PER MINUTE
NW 1/4 S. 24, T5N, R14W	82 feet	30
SW 1/4 S. 24, T5N, R14W	220 feet	14
NE 1/4 S. 24, T5N, R14W	140 feet	40
SE 1/4 S. 26, T5N, R14W	135 feet	unknown

Individual septic tanks and subsurface drainfields are proposed for the disposal of sewage. Percolation tests were completed in July 1973 with all tests performed according to specifications established in the Montana Department of Health and Environmental Sciences' Regulation 51.300, Section 7.4.5. Results indicated the soil would readily accept septic tank effluent for disposal and treatment.

A sanitary landfill near Anaconda is available for use by future residents of the proposed subdivision. A commercial pick-up service is also available for those who prefer not to haul their own refuse.

Topography, geology and soils

As described by the Montana Bureau of Mines and Geology, this property is underlain by the Newland Limestone which is a dark bluish-gray argillaceous, dolomitic limestone with some argillite, locally schistose. The gulch itself is filled with recent alluvial material.

Marcetta gravelly loam soils have developed under grassland conditions over the alluvial material. These soils are well drained with moderate permeability and present slight limitations for subsurface sewage disposal in the absence of high groundwater conditions. The depth to groundwater has not been determined on the lots that the small creek flows through; namely Lots 1, 3, 5, 10, 11, 49, 50, 51, 52, and 53, Tract C.

The grasslands on the slopes are dominated by the loams and stony loams of the Hanson-Skaggs complex. Slopes range from 8 to 25 percent. These soils are well drained with moderate permeability and are suitable for subsurface sewage disposal, except on the steeper slopes and where there is shallow depths to bedrock.

The predominantly lodgepole pine timbered areas are dominated by garlet gravelly loam. They are well drained with a high rate of infiltration and rapid permeability. Limitations to the installation of subsurface sewage disposal systems are slight, except on the steeper slopes. These areas with steep slopes should not be utilized as sites for subsurface sewage disposal. The grass parks in the timbered areas are underlain by Whitore cobbly loam. These moderately permeable soils present severe limitations to the installation of subsurface sewage disposal systems because of slopes of 15 to 30 percent.

Surrounding development

The area immediately surrounding the proposed subdivision is largely undeveloped, except for Edward's Tracts to the northeast and developments along Georgetown Lake to the north. Therefore, the development of this property would not be an intrusion into a pristine environment.

Probable impact on the environment

Impacts from development of this property would fall within the range associated with the residential use of a semi-primitive area. The

magnitude is purely speculative, although none appear to suggest any prohibitive degree of severity. A visual impact would result from the proposed development, although the severity or desirability is a matter of personal aesthetic values.

The potential for significant air pollution seems minute although there will be some road dust generated. Some of the roads are already constructed and some clearing will be necessary in order to accommodate houses. It is a possibility that some lots would require leveling with heavy equipment in order to improve building sites. Construction of water and sewer systems will result in further disruption.

Game habitat in the area would be permanently lost by development of this property. However, no state legislation prohibits development in areas frequented by wildlife, and if other state requirements are satisfied, this department is obliged to approve the project. The Montana Department of Fish and Game has expressed concern about possible accelerated eutrophication of Georgetown Lake. They suggested that at this point in time perhaps consideration should be given to a single treatment plant for the Georgetown Lake area.

There would be little immediate effect on the local school system. Lack of economic opportunities would preclude year-round residency for most families with school-aged children. However, a few may not find the daily drive to Anaconda or some other town unacceptable.

Alternatives available to this department

1. Remove the sanitary restriction on the subdivision as submitted.

2. Refuse to remove the sanitary restriction on the subdivision.

3. Remove the sanitary restriction on portions of the property that can meet department requirements with respect to water supply, sewage disposal, solid waste disposal and water quality.

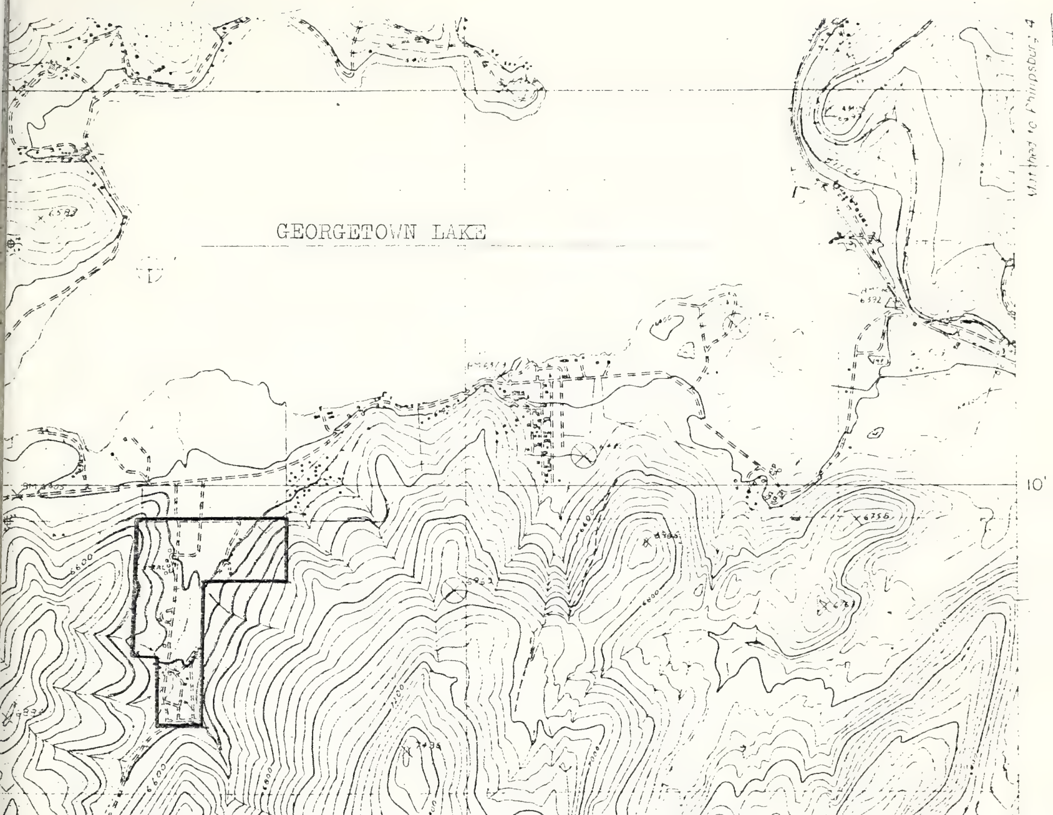
Short-term/long-term comparisons

Long-term worth is best represented by the intangible value inherent in leaving the land undeveloped for wildlife habitat and as an aesthetic shoreline bordering a recreational body of water. In the short-term, the land is most economically valuable as a recreational home subdivision. However, recreational subdivisions generally tend to reduce the recreational value of their surrounding.

Irreversible commitment of resources

There would be a commitment of non-recyclable building materials used in the construction of second homes. The proposed subdivision would break the land into a multiplicity of ownerships which would probably be irrevokable.

This statement was prepared by Alfred P. Keppner, Soils Scientist, Water Quality Bureau, with information furnished by the developer, the U. S. D. A. Soil Conservation Service, the Montana Department of Fish and Game, John Peterson, R.S., and the law offices of Knight, Dahood, Mackay and McLean.



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STATE DOCUMENTS
3-7-74

March 4, 1974

Honorable Thomas Judge, Governor of Montana
Mr. Frank Lamb, Red Lodge
Mr. Charles Luedke, District Court of the 13th Judicial District, Red Lodge
Mr. Arthur W. Ayers, Jr., County Attorney, Courthouse, Red Lodge
Mr. Allen D. Gunderson, Harwood, Gales & Gunderson, Box 926, Billings
Department of Fish and Game, Helena
Department of State Lands, Helena
Environmental Quality Council, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Supervisor, Custer National Forest, Red Lodge
Board of County Commissioners, Courthouse, Red Lodge
Carbon County Planning Office, Box 460, Red Lodge
Mr. Rodney Fink, Sanitarian, Box 111, Columbus
Atlas Engineers, Box 1483, Billings
City of Red Lodge, Box 507, Red Lodge
Mr. Rick Graetz, Box 894, Helena
Mr. Alf Hulteng, Branch Office, Box 20296, Billings
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Soil Conservation Service, Box J, Joliet
Mr. Jim Corning, Box 20236, Billings
Mr. Charles O'Donnell, Attorney, Department of Health, Helena
Mrs. Rita Sheehy, 1041 Poly Drive, Billings

Gentlemen:

Enclosed is the final environmental impact statement for Lamb Estates Subdivision in Carbon County.

Comments and questions will be accepted for 30 days following issuance of the statement.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:AJG:sh
Enclosure
cc: Dr. Anderson
Dan Vichorek

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

STATE OF MONTANA
DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

March 4, 1974

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR LAMB ESTATES SUBDIVISION IN CARBON COUNTY

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 4827, the following statement was prepared by the Environmental Sciences Division of the Montana Department of Health and Environmental Sciences, which has been asked to remove sanitary restrictions on this subdivision.

A draft environmental impact statement for this subdivision near Red Lodge, Montana was prepared by this department on December 7, 1973.

Additional Information:

The owner submitted additional information on this subdivision through Atlas Engineers, Incorporated, Billings, Montana on January 18, 1974. It is stated that permits are available at the Red Lodge city hall for rural residents to use the city of Red Lodge sanitary landfill.

Typical lot layouts are provided indicating sprinkler areas from holding tanks plus the detail of the wet well, pump and sprinkler for spray irrigation disposal of bath, lavatory, laundry, and kitchen sink wastewaters. It is also stated that wastewater that is to be hauled from the site will be by contract haulers. The contract hauler who now serves the area in which the referenced subdivision is located dumps at the city of Laurel sewage treatment plant. In the future, the city of Red Lodge may develop an approved dump site which would make this type of operation a more practical matter.

This information contends that potable water may be hauled to cisterns in the Red Lodge area by Billings and Laurel commercial water haulers. The cost of such hauling will, for the foreseeable future, dictate the development of individual wells. There is within this subdivision area an abundance of water for well development. The requirement of five gallons per minute sustained yield is a function only of an adequately sized system being developed in the opinion of the engineer. Information as to the required well depth for potable water is not provided.

Impacts:

A letter dated January 4, 1974 from the Environmental Quality Council recommends against any clearing of streamside vegetation and against placing buildings too close to the creek. The Declaration of Restrictions by the developer on this subdivision provides that no trees or natural growth shall be cut, trimmed, or destroyed until express approval is obtained from the declarants or their designated agent. Provisions for other clearing restrictions or building location restriction will require zoning that cannot be provided by this department. The Fish and Game Department has reported in September 1973 that one lot has been cleared of trees all the way to the stream.

The correspondence from the city of Red Lodge in letters of December 14, 1973 and January 21, 1974 contends opposition to any housing construction close to the west fork of Rock Creek where the city gets its drinking water. Overall zoning of this area that cannot be provided by this department will be required to prevent housing construction in this area. This department's policy statement on watersheds above public water supply is that no removal of sanitary restrictions from land developments on public water supply watersheds will be considered without adequate community sewage collection and disposal facilities which treat and dispose of sewage below the water supply intake. The department's legal staff's interpretation of this policy considers a wholly no-discharge type wastewater disposal as being acceptable.

The information presented on this subdivision on December 27, 1973 by the Montana Department of Fish and Game notes loss of white-tailed deer habitat and ruffed grouse habitat if the subdivision is developed. Disapproval of this application on these grounds is not within the authority of this agency according to the present interpretation of state law. This point merely emphasizes again the need for comprehensive planning designed to meet all the desires of a particular development in its total environmental need. Another point brought out was the question of satisfactory handling of wastewaters.

Comments:

The policy relating to removal of sanitary restrictions from land development on public water supply watersheds will not permit the disposal of wastewater by spray irrigation. If the developer would propose a total no-discharge on watershed disposal system, the legal staff and administrators of this department can consider such a proposal as an equivalent to sewage collection and disposal below the water supply intake.

Guidelines from the Environmental Quality Council require the issue of the final environmental impact statement which clearly evidences responsiveness to comments received on the draft environmental impact statement. The purpose of this assessment and consultation procedure is to provide agencies, other decision-makers, and the public with an understanding of the potential environmental effects of proposed actions. These guidelines also require that administrative action shall not be taken sooner than 30 days after the text of this statement has been available to the Environmental Quality Council, all interested governmental agencies and the public.

This statement was written and prepared by Albert J. Gasvoda, Architect, Water Quality Bureau, Environmental Sciences Division, Department of Health and Environmental Sciences.

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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

December 7, 1973

Honorable Thomas Judge, Governor of Montana
Mr. Frank Lamb, Red Lodge
Mr. Charles Luedke, District Court of the 13th Judicial District, Red Lodge
Mr. Arthur W. Ayers, Jr., County Attorney, Courthouse, Red Lodge
Mr. Allen D. Gunderson, Harwood, Galles & Gunderson, Billings
Department of Fish and Game, Helena
Department of State Lands, Helena
Environmental Quality Council, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Supervisor, Custer National Forest, Red Lodge
Board of County Commissioners, Courthouse Red Lodge,
Carbon County Planning Office, Box 460, Red Lodge
Mr. Rodney Fink, Sanitarian, Box 111, Columbus
Atlas Engineers, Billings
City of Red Lodge, Box 507, Red Lodge
Mr. Rick Graetz, Box 894, Helena
Mr. Alf Hulteng, Branch Office, Box 20296, Billings
Student Environmental Research Center, Room 212, Venture Center, Missoula
Montana State Library, Helena
Soil Conservation Service, Box J, Joliet

Gentlemen:

This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of this statement. An additional 15 days is available upon request.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:sh(AJG)
Enclosure
cc: Ben Wake

MONTANA STATE LIBRARY
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Helena, Montana 59601

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR
LAMB ESTATES SUBDIVISION
IN
CARBON COUNTY

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); and the act controlling both public and private water supply and sewage disposal for subdivisions; and the act to control water pollution, the following statement was prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences, which has been asked to remove the sanitary restriction on this subdivision. State law requires that the sanitary restriction be removed before construction on the property of any building that would require facilities for water supply or the removal of sewage or trash.

Location

This property is located in Section 12, Township 8 South, Range 19 East. Custer National Forest land is to the west of this subdivision. It lays on the west fork of Rock Creek about two and one-fourth miles upstream from the city of Red Lodge water supply. A map is attached to indicate this property.

Description of the proposed development

The owner, Franklin Lamb of Red Lodge, would divide 5.5 acres into 5 lots. It is noted on the subdivision plat that park requirements shall be met by a cash donation.

The subdivision is designated as Block One and consists of 5 lots, each 100 feet wide and depths ranging from 430 to 500 feet. Lot areas range from 43,000 to 50,000 square feet. Each lot has for its south boundary the centerline of the west fork of Rock Creek. Stream frontage averages about 120 feet for each lot.

Gravelled driveways with no formal drainage systems are proposed.

According to the restrictive covenants, "No structures shall be erected, altered, placed or permitted on any portion of said land except single family residences, a private garage or carport detached for more than two cars. One guest cabin and a structure to be used as a storage facility may be constructed for use with the single family residence, but shall not contain any kitchen facilities. Any sanitation facilities in the guest carbin must conform to the state and county sanitary rules, regulations and requirements and all fluid disposal systems must be directly connected with the fluid disposal system for the single family residence. Any sewage disposal system in the guest cabin must be either an electric or gas incinerator reducing all waste to an ash. All buildings must be of new construction and no building shall be moved onto said land. No mobile or trailer homes may be maintained on said property.

"Any residence constructed shall contain not less than 700 square feet, exclusive of open roof areas, cabanas, carports and garages, the location of which must be approved by these declarants or their designated agent.

"No building of any kind shall be constructed within 20 feet of the property boundary lines.

"No building of any kind shall be constructed until the plans and specifications therefore have been approved by the declarants of these restriction or their designated agent. All buildings shall externally conform to the alpine nature of the area, and none will be permitted to have metal roofs or siding.

"No trees or natural growth shall be cut, trimmed or destroyed until express approval is obtained from these declarants or their designated agent.

"All plans for the installation of sanitary facilities shall be submitted to and be approved by the Montana State Board of Health and the Carbon County Board of Health prior to the commencement of any residential construction. No outhouses will be permitted.

"Cattle, horses, swine, goats, sheep, fowl or other barn yard animals, livestock or poultry are prohibited on said property.

"Only decorative fencing shall be permitted in the development of individual residential sites and no barbed or woven wire fences will be permitted except where presently constructed and around external boundaries of the above described property.

"No rubbish, trash, junk or garbage shall be allowed to accumulate and shall be kept maintained. Any machinery, equipment, appliances, trailers or similar articles shall be kept in enclosed buildings except when in normal use. No accumulation of fire hazard materials will be permitted.

"Any tanks used in connection with any residence for the storage of gas, fuel oil, gasoline or oil must be kept buried or screened by adequate planting or decorative fence to properly conceal them.

"No dumping, drainage or other disposals shall be permitted to enter the flow of any stream adjacent to or on any portion of said land. No obstruction or installation of any kind shall be made in or immediately adjacent to the stream which might in any manner interfere with or change the natural stream flow or course.

"No septic tanks or sewage absorption disposal systems can be constructed, installed or maintained. Only incineration toilets of either gas flame or electric heat type may be installed, maintained or used. All bath, sink or other fluid wastes must be pumped or conveyed in water-tight pipes to an underground holding or storage tank which must be maintained and operated in such a manner that no fluid shall enter the adjacent soil. Such installation shall be at least 50 feet from and lower than the location of any well situated on said lot or adjoining lots. All fluids therefrom must be pumped and removed from said lands or sprayed upon the surface in such a manner that no portion thereof can possibly enter the flow of any stream or percolate into the underground water table or courses. All such systems must be approved by the County Sanitation Officer and the State and County Boards of Health before any operation thereof.

"No commercial enterprises shall be conducted from or on said land and no unlawful, offensive, noisy, immoral activity or condition shall be carried on or maintained, nor shall anything be done or permitted thereon which may become a nuisance or annoyance to the adjoining portions of said land. Any yard lites must be installed in such a manner that the operation thereof shall not be an annoyance to the adjoining property owners."

These covenants may be enforced by any owner of a portion of said land and amendments, additions or changes thereto may be accomplished by consent of the recorded owners of 85 percent of the land.

The developer proposes that the method of supplying water be by individual wells or cisterns.

Topography and soils

The surface of this property is gently sloping.

The soil is a Charlos Stony Loam. The engineers for the project listed in a test pit log to a 7.8 feet depth as 2 feet in black topsoil, the next foot is mixed sand and gravel with the remainder beneath as sand, gravel and boulders. The groundwater table on May 18, 1973 is shown at 6.8 feet below the ground surface.

Three test holes for percolation tests were made on the subdivision. The percolation rate for test hole number 1 is 35 minutes per inch. The percolation rate for test hole number 2 is 83 minutes per inch. The percolation rate indicated for test hole number 3 is 50 minutes per inch.

In the E. S. 91 form, it is indicated that the land surrounding the estate on the south and west is U. S. Forest Service land that is rugged with little or no access. This 5.3 acre subdivision is part of the estate.

Impacts

The developer states that "The wildlife associated with this area is small game. The use of this land for cabin sites would not affect deer pasturage as they feed and live primarily on the adjacent forest mountainous land."

The Red Lodge City Council on September 11, 1973, passed and adopted a Resolution No. 900 recording its opposition to the approval of the plat of this subdivision in consideration of the city policy with reference to development within the area fronting on Rock Creek and within the approaches to the Red Lodge city water supply.

The developer also states that the type of sewage disposal proposed would add no pollution to Rock Creek. A typical lot arrangement has not been provided to indicate driveways, holding tanks, wells, cisterns, surface spraying areas and buildings. There is only driveway access to the lots. The existing abandoned forest road will be graded out and planted to native grass because the road has left considerable scar on the land.

The covenants state removal of solid waste from the subdivision but do not define acceptance to a satisfactory landfill.

Incinerator toilets are to be used. All bath, sink or other fluid wastes must be pumped or conveyed into sealed underground wastewater holding tanks. The developer states that the fluids from the holding tanks will be pumped and removed from the subdivision or sprayed upon the surface in such a manner that no portion thereof can possibly enter the flow of any stream or percolate into the underground water table or courses. There is no indication as to how the wastewater will be hauled off site and where it will be taken. The soil of this area has slow permeability and will absorb surface water slowly. The percolation results show this slow acceptance of this soil for surface water.

Alternate actions available to this department

1. Approve the subdivision as requested.

2. Approve the subdivision subject to certain conditions.

3. Disapprove the development.

An alternate that would be in accordance with the Department of Health and Environmental Sciences statement that no removal of sanitary restriction from land developments on public water supply watersheds will be considered without adequate community sewage collection and disposal facilities which will treat and dispose of sewage below the water supply intake would be for the subdivision developers of this watershed to join together and provide a centralized sewerage system below the city of Red Lodge water supply intake.

Short-term/long-term comparisons

The land originally was a homestead. The developer states that if the land cannot be used for exclusive restricted cabin sites, then it will be necessary for him to use the land for cattle pasturage which would permanently damage the area and destroy its recreational value.

If the land were left undeveloped and unused, the small game of the area would continue to survive.

Irreversible commitment of resources

The normal commitment of resources for this type of development can be expected.

Comments

On October 16, 1973, a complaint was filed in the district court of the thirteenth judicial district of the state of Montana in and for the county of Carbon by the Department of Health and Environmental Sciences of the state of Montana against Franklin A. Lamb and Dorothy E. Lamb, husband and wife, for enforcement of the health laws of the state of Montana.

In this complaint, it is stated that the defendants have caused lands to be surveyed and platted into several parcels or lots for the purpose of selling and disposing of said parcels or lots and defendants are now constructing or now causing to be constructed a building thereupon which requires facilities for the supply of water and disposal of sewage and solid waste. It is further stated that the defendants have not obtained approval of the appropriate local health officer nor have defendants secured the approval of plaintiff that it has approved the plat and plans and specifications and that said premises are subject to no sanitary restrictions. Said lands are subject to sanitary restrictions as set forth in Chapter 50 of Title 69, Revised Codes of Montana, 1947.

The developer has not provided information to verify that the individual water systems from wells will provide the required sustained yield of at least five gallons per minute. If cisterns are used, the developer must state where and how water will be obtained for the cisterns.

The developer has stated that this land or any portion thereof has never been flooded and is not located in the 50-year flood plain.

On October 31, 1973 an order for issuance of writ of preliminary injunction was signed by District Judge Charles Luedke as follows:

"The plaintiff in the above-entitled cause having commenced an action in this Court against the above-named defendants and having prayed for a preliminary injunction against defendants requiring them to refrain from certain acts in said complaint, and hereinafter more particularly mentioned, on reading the complaint in said action, duly verified by oath of the County Sanitarian of Carbon County, Montana, and a hearing having been heard thereon in open Court on the 18th day of October, 1973, the plaintiff appearing by Arthur W. Ayers, Jr., County Attorney of Carbon County, Montana, and the defendants appearing by Allen D. Gunderson of Harwood, Galles & Gunderson, Attorneys at Law, Billings, Montana, and it satisfactorily appearing to the Court therefrom that this is a proper case for a preliminary injunction and that sufficient grounds exist therefor.

"It is hereby ordered that said defendants, their agents and employees, and all other persons acting in said of or assistance of each and every one of them are preliminary enjoined and restrained from using or occupying in any manner the building now being constructed on the lands described in the complaint on file herein and from installing outside said building any facilities for the supply of water or using any facilities for the supply of water or installing or using any facilities for disposal of sewage or solid waste therein until such time as plaintiff has approved the plat, plans and specifications and has certified that said lands are subject to no sanitary restrictions or until further order of this Court. Further hearing on this matter shall be continued until further order of the Court."

Unless new information requires an alternate course of action, this department will continue review of this project in 60 days following issuance of this statement.

Guidelines from the Environmental Quality Council require:

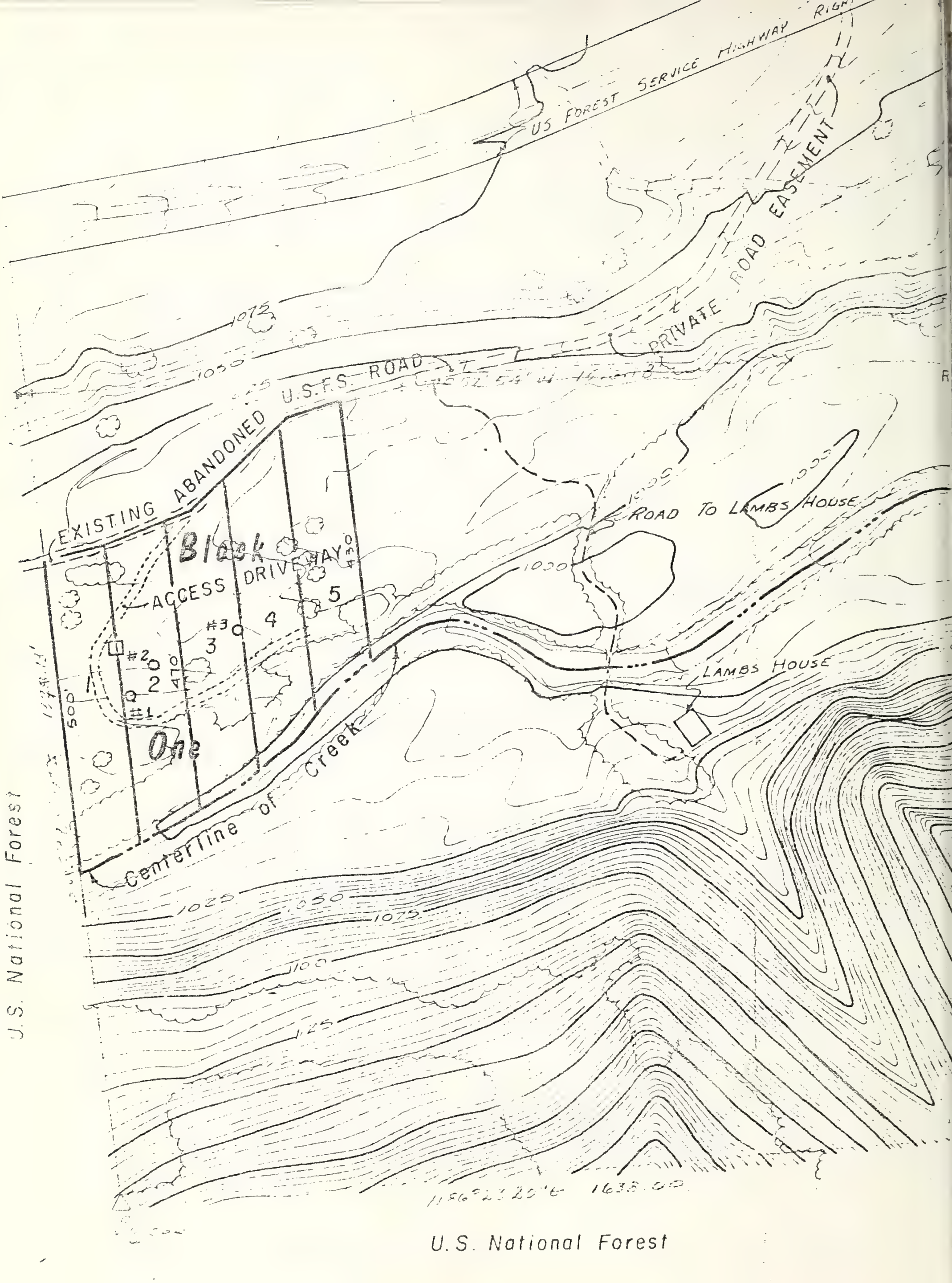
1. Make provisions for the circulation of draft statements to other appropriate agencies, selected private groups and individuals, and for their availability to the public.

2. Give careful consideration to the comments elicited from aforementioned sections; and

3. Issue a final environmental impact statement which clearly evidence a responsiveness to such comments. The purpose of this assessment and consultation procedure is to provide agencies, other decision-makers, and the public with an understanding of the potential environmental effects of the proposed actions.

If no other information becomes available within 30 days, the Environmental Quality Council may waive a portion of the remaining period. Although the Montana Environmental Policy Act requires this department to assess all impact in the environmental impact statement, only matters dealing with departmental authority over water supply and sewage and solid waste disposal are grounds for disapproval of the subdivision.

This impact statement was written by Albert J. Gasvoda, Architect, with information furnished by the developer, Carbon County Planning Office and the city of Red Lodge.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ACCESS DRIVEWAY
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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

MAR 27 1974

March 18, 1974

Board of County Commissioners, Courthouse, Anaconda
City-County Planning Board, Courthouse, Anaconda
George Trobough, M.D., Co. Health Officer, 115 W. Commercial, Anaconda
John D. Peterson, Sanitarian, Courthouse, Anaconda
Environmental Quality Council, Helena
Fish and Game Department, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Discovery Basin Ski Area, Georgetown Lake, Anaconda
The Anaconda Leader, 121 Main, Anaconda
Silver State Post, 312 Missouri Avenue, Deer Lodge
Philipsburg Mail Printers, Philipsburg
Montana Standard, 312 East Park, Butte
Office of the State Forester, West of Anaconda, Anaconda
Soil Conservation Service, 311 Montana Avenue, Deer Lodge
Jack McLeod, 1917 Harrison Avenue, Butte
Robert Shelton & Associates, 228 West Main, Missoula
Sylvan Lutey, County Planning Board, Courthouse, Philipsburg
U. S. Forest Service, Butte
Anaconda Company Lands Department, Butte

Gentlemen:

The enclosed draft environmental impact statement has been prepared for McLeod's Mountain View Estates in Deer Lodge County, Montana. All comments or questions should be submitted within 30 days.

Sincerely yours,

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Environmental Sciences Division Administrator

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

March 18, 1974

A Draft Environmental Impact Statement
for
McLEOD'S MOUNTAIN VIEW ESTATES,
a proposed subdivision in Deer Lodge County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); the act controlling both public and private water supply and sewage disposal for subdivsions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 4827, the following draft environmental impact statement is prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning the proposed McLeod's Mountain View Estates subdivision near Georgetown Lake in Deer Lodge County, Montana, for which a request has been received for the removal of the sanitary restriction which has been imposed upon the property.

Location

This project is located about three-fourths mile east of Georgetown Lake. It is a tract of land situated in Mountain View Lode Survey No. 6394 and Crapes Lode Survey No. 3031, Section 8, Township 5 North, Range 13 West, MPM, containing 34 acres more or less.

Description of proposed project

The subdivision plat was filed with sanitary restrictions in the office of the Deer Lodge County clerk and recorder on the 28th day of June, 1973. The owner, Jack McLeod and Associates, a Montana corporation, would divide the 34 acres into 40 lots ranging in size from 20,405 to 38,768 square feet. There would be 5.4 acres in road and snow fence and 3.3 acres in dedicated park.

The developers propose that each lot owner drill a well for domestic water supply and that septic tanks and subsurface drainfields be used for sewage and wastewater disposal. Solid waste may be hauled to the landfill near Anaconda for proper disposal. A commercial pick-up service is available in the area.

There are no watercourses on the property, although the area drains into Georgetown Lake. No surface runoff was observed in the years 1972 or 1973 according to Robert J. Shelton, professional engineer and land surveyor.

Topography, geology and soils

The land is mostly gently to moderately sloping, but grades to moderately steep (20 percent range) on the southern most eight lots. On these lots, care would have to be taken in the installation of drainfields on the contour to prevent compaction of the soil.

Three soil profile pits were dug on the property to show the nature of the soil throughout the development. Following are the profile descriptions as presented by Robert J. Shelton:

Soil Profile A

Depth in Feet	
0 - 1	Clay Loam
1 - 2.5	Clay
2.5 - 4	Clay and Gravel
4 - 5.5	Clay and Rocks
5.5 - 6.5	Fractured Bedrock

Soil Profile B

Depth in Feet	
0 - 6	Sand and Gravel

Soil Profile C

Depth in Feet	
0 - 1	Clay Loam
1 - 1.5	Clay Loam and Gravel
1.5 - 5	Clay and Gravel
5 - 15	Clay, Sand and Gravel

Water table at 15 feet in October, 1972.

Seventeen percolation tests were conducted to determine the ability of the soil to accept septic tank effluent. Percolation rates ranged from 7 to 32 minutes per inch, which is adequate for sanitation purposes.

The property is underlain by the Devonion aged Jefferson Formation, which consists of alternating light-colored limestones and highly fetid dolomites. Potential water sources would be the result of fractured permeability rather than intrinsic permeability. A thrust fault across the valley to the northwest of the property has resulted in many fractures of the bedrock; therefore, a potential for developing a domestic water source from individual wells exists.

Depths to groundwater were determined in the lower areas of the subdivision in October, 1972 and determined to be greater than ten feet. On the recommendation of the Deer Lodge County Commissioners, the county sanitarian and the Department of Health and Environmental Sciences, the water table will be checked during the next high water period. This information is needed to avoid degradation of the groundwater resource.

Surface resources

The existing vegetative cover is dominated by lodgepole pine with associated grasses and forbs. The potential of the site for commercial timber production is low, but the small amount of lodgepole timber present is being harvested. The area has been used as a mining prospect. The disturbed nature of the land precludes this property being critical as game range. As stated earlier, no surface water exists on the property.

Probable impacts of the development on the environment

Impacts from the development of this property would undoubtedly fall within the range associated with the residential use of a mountainous landscape. Part of the development may be visible from Georgetown Lake. However, harvesting of the timber is altering the landscape and having an adverse aesthetic effect.

Development of recreational homesites would accelerate revegetation of the land. Prospect holes and an old garbage dump would likely be reclaimed. From existing conditions, it would appear development could have a positive effect on aesthetics.

The potential for significant air pollution seems minute. Some dust from roads would add particulates to the atmosphere. Emissions from heating plants would be minimal as this would primarily be a recreational development. This same fact precludes any significant impact on the local school system. However, the increased property valuation would generate additional revenue for the school district.

The Forestry Division of the Department of Natural Resources and Conservation has firefighting equipment at Yankee Flats, about seven miles from the proposed development. There is also a fire truck at Discovery Basin. The U. S. Forest Service patrols the area with a tanker during the fire season.

Alternatives available to this department

1. Remove the sanitary restriction on the proposed subdivision as submitted. Until the additional groundwater data is submitted, the department cannot give further consideration to this alternative.

2. Refuse to remove the sanitary restriction on all lots within the proposed subdivision. The environmental review process did not indicate the department can justify this action.

3. Re-evaluate the submittal after additional groundwater data is submitted and comments in response to the environmental impact statement received.

It should be noted that information submitted with the preliminary plans, except for the needed groundwater information on the lower lots, appear to meet concept criteria required by Section 69-5001 through 69-5005, R.C.M. 1947.

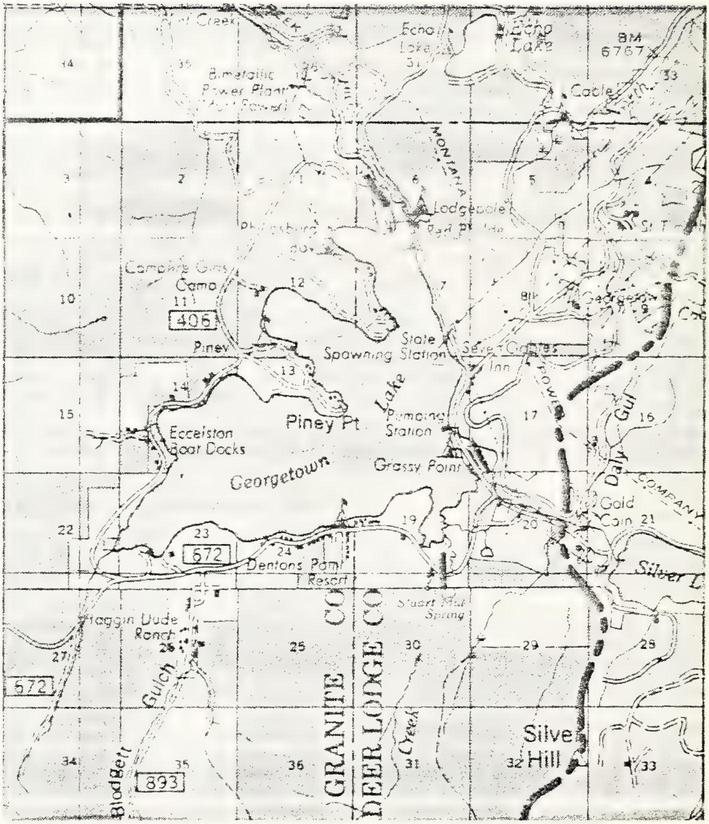
Short-term/long-term comparisons

Long-term net worth would best be represented by its value as a site for timber production and the intangible value inherent in leaving the land undeveloped. However, the land has been disturbed by mineral prospecting and the timber is being harvested. In the short-term, the land is most economically valuable as a recreational home subdivision. There would be no permanent harm to the mining potential except fragmentation of title.

Irreversible commitment of resources

There would be a commitment of non-recyclable building materials used in the construction of second homes. The proposed subdivision would break the land into a multiplicity of ownerships, which would probably be irrevokable.

This statement was prepared by Alfred P. Keppner, B.S.F., M.S., Soils Scientist, from information submitted by the developer; Robert J. Shelton, professional engineer; Deer Lodge County Health Department; and the Deer Lodge County Commissioners.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BM 6767
Bimetallic Power Plant
Cable
MONTANA
Lodgepole
Philipsburg
Campfire Girls Camp
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Piney
State Spawning Station
Seven Gables Inn
Georgetown
Lake
Piney Pt
Pumping Station
Eccelston Boat Docks
Georgetown
Grassy Point
POWER
Daly Gul
COMPANY
Gold Coin
Silver L
672
Dentons Point Resort
Stuart Mill Spring
Haggin Dude Ranch
Gulch
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GRANITE CO
DEER LODGE CO
Creek
Silver Hill
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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601
KALISPELL REGIONAL OFFICE-Box 1031-Kalispell, MT 59901
John S. Anderson M.D.
DIRECTOR

MAY 1 1974

April 22, 1974

COPIES OF MEADOW MOUNTAIN RANCH SENT TO THE FOLLOWING:

Mr. Dean Marquardt, P.E. 809 1st Ave. East Kalispell, MT 59901
Montana Environmental Quality Council, Helena 59601
Montana State Highway Dept. Kalispell Div. Kalispell 59901
Montana Fish &Game Dept. Attn: Jim Posewitz, Helena 59601
Montana State Dept. of Health & Env. Science Attn: Art Clarkson, Helena 59601
Montana State Dept. Intergovernmental Relations, Div. of Planning & Economic Dev.
Capitol Station, Helena 59601
Montana State Library 930 E. Lyndale Helena 59601
Mr. Ben Wake, Administrator, Environmental Science Div. Helena 59601
USDA Forest Service Kootenai Nat'l Forest Box AB Libby 59923
Board of County Commissioners, Lincoln County Libby, MT 59923
Mr. Terry Schultz, Lincoln Co. Sanitarian, Courthouse Libby 59923
Mr. Wayne Herman, President, Flathead Wildlife, Inc. Box 4 Kalispell 59901
Student Environmental Research Center Room 212 Venture Center Missoula 59801
Dr. JohnTibbs, Director U of M Biological Station Yellow Bay, Bigfork, 59911
Trout Unlimited, Mr. Gary Hanson Plaza West I Kalispell, MT 59901
Regional Planning Assoc. of Western Montana 133 W. Main Missoula 59801
Mr. D. Garvin Lincoln Co. Planner Box 802 Eureka, 59917
Flathead Tomorrow Ms. Kathy Thompson Box 173 Bigfork 59911
Libby Rod & Gun Club Box 719 Libby 59923
Mr. Dennis G. Jones, Missoulian Correspondent Box 287 Polson 59860

Gentlemen:

The enclosed Draft Environmental Impact Statement has been prepared for Meadow Mountain Ranch , a subdivision in the Thompson Lakes region of Lincoln County, Montana.

Under Montana law, a person or agency has thirty days to submit comments and/or supply new supplementary information. An additional fifteen days may be granted upon specific request to an individual or agency. Comments received in response to this draft statement will be summarized and included in the Final Environmental Impact Statement.

Sincerely,

Wilbur O. Aikin, P.E.
Public Health Engineer
Environmental Sciences Division

WOA:jh

930 East Lyndale Avenue
Helena, Montana 59601

A DRAFT ENVIRONMENTAL IMPACT STATEMENT

FOR

MEADOW MOUNTAIN RANCH

A proposed subdivision in Lincoln County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (6) (3), the act controlling both public and private water supply and sewage disposal for subdivision, Section 69-5001 to 69-5005; and the act to control water pollution, Section 69-4801 to 4827, the following draft environmental impact statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the possible administrative approval of the Meadow Mountain Ranch Subdivision, located between Kalispell and Libby in Lincoln County, Montana.

LOCATION AND SIZE

The rural-recreational subdivision which is under review in this statement consists of 30 contiguous lots in a single 22 acre block along the north shore of Middle Thompson Lake in the Thompson River (lower Clark Fork) drainage basin. Parcel sizes vary from 20,000 square feet to an acre. Average size is in the 25,000 to 30,000 ft^2 range.

Geographically the location is very nearly equidistant between Kalispell (44 miles to the east) and Libby (45 miles to the west) along U.S. Highway 2. Middle Thompson Lake bounds the project on the south, U.S. Highway 2 is on the north, Logan State Park, administered by the Fish & Game is on the west and a small 350 foot wide private frontage is on the east.

Slimmer Creek, a small, ocassionally intermittant stream, bisects the property. It should be understood that the extremely low, often swampy or flooded peninsula of land to the south and east of the mouth of Slimmer Creek is not a part of this subdivision submittal. Please see map enclosure.

TOPOGRAPHY AND SOILS

With the exception of the northeast corner, the entire project area is no more than 10 feet above the high water level in Middle Thompson Lake. In fact, 45% of the subdivision is only 6 feet above the high water elevation of Middle Thompson Lake. In summary, the major portion of thirteen lots are probably so close to the ground water table that in these specific locations septic systems and drainfields are impossible to approve.

Surface soils in this low area are also extremely tight, consisting mostly of clay and silt with irregular bands of sand at 3 to 4 foot depths. The ground slopes away from the water along this low shoreline varying from 3% on the east and west to 1% or less in the Slimmer Creek delta area.

Beyond the obviously difficult six-foot above water marker elevation, the land tends to rise and flatten, and in the northeast corner rise rather sharply again on a 4 to 6% grade. Soils in the higher area are not banded, however clay is again the predominant constituent with clayey loams on clayey sands found in all test holes.

Heavy mats of organic rich loams are characteristic of the surface soil development through most of the subdivision.

Four ten foot test holes were dug and logged. Only one, 200 feet from the lake, made any water; the other three were totally dry even at horizons below the elevation of the water level then existing in the lake. It is the contention of the developer that except for the aforementioned shoreline band, the ground water elevation is strongly depressed, owing to the heavy clay in the deep subsurface.

ACCESS

With Highway 2 bounding the property on the north, all weather access to the subdivision is assured. Access within the project area is projected to consist of a single central turn-off from the main highway onto two 60 foot wide interior easements which will wing-out and run laterally on a rough east to west trend through the center of the plat.

These roads are to be private roads, owned and operated by a Homeowners Association. Since county standards will not have to be met, it has been simply specified that the roads will be gravelled, drained to roadside gutters and without cut or fill sections. A single crossing of Slimmer Creek is proposed and a 36" culvert has been specified for this stream crossing.

Properly constructed, the roads might have little effect on water quality. Improperly constructed and maintained, effects could be considerable, at least locally. An since there are no real controls or standards to be met, the matter of impact must remain an open question pending actual construction.

PRIOR USE

Stumpage scattered throughout the area attests to the fact that the higher portions of the ground once harbored a fine stand of unusually large Ponderosa Pine. A few of these mature trees remain, but the land is essentially clear and free of any vegetation other than wild grasses and low shrubs. The ground has also been utilized in the recent past as a recreational ranch or private campground and a few log cabins marking the earlier uses are still in evidence. To date, human use has been low density, summertime-only recreationally oriented.

As to agricultural value, the area is either too small; or along the shoreline, too wet, to have any capability other than moderate grazing or limited free farming.

WATER QUALITY CONCEPTS

Water Supply - Water is to be supplied by a community water system which will, in time, belong to a Homeowners Association. The source is to be a drilled well with a storage tank buried in the high ground---north of the project, across the highway---providing pressure and volume.

The proposed concept is feasible and the preliminary engineering details are entirely reasonable. Water, in the required amount and quality, can be expected from subsurface sources. The Fish and Game well at Logan State Park proved up at 50 gpm from 125 feet. However, the well is not yet drilled, nor are the water system plans complete. Final approval of the plat cannot be made until the source is proven and the plans and specifications for the system completed to the State Department of Health standards.

It should be pointed out that lot sizes in the 20,000 ft^2 range, as these are, become acceptable if a community water supply system is available. The usual recreational size of 1 acre is required only when both individual water and sewer systems are planned for each lot.

Sanitary Sewage - Of the 30 lots proposed, ten cannot possibly meet the State ground water standards; five are questionable and in need of further consideration and fifteen are located in areas shown to be reasonably satisfactory.

To meet the problems the developer has submitted plans proposing that:

(1) For the 15 higher back-lot parcels, standard septic tank drainfield systems be approved with absorption fields based on a 1 gallon per square foot design value. Purely in terms of physical capabilities, this proposal is reasonably well documented.

(2) For the 10 lower lakeside lots, sanitary sewage would be disposed of by means of incinerator toilet or destroylet. Wet sanitary sewage systems could not be tolerated in any form nor would unsealed pit privies. So called "white water" is to be discharged to holding tanks---900 gallons minimum size---and disposed of by means of spray irrigation on the back of the lots so specified. It should also be understood that the State would retain the right to request that this sprayed non-sanitary waste water be chlorinated should problems develop as the result of this procedure. It should also be understood that laundry wastes (i.e. a washing machine facility) could not be discharged to any of these systems because of the high volumes implied.

Such restriction on the disposal of sanitary sewage from these parcels virtually eliminates the possibility of full-time year round use. It would not interfer with summertime recreational use however, and since variations of this scheme are in use elsewhere, including the Logan State Park next door, the method is hereby being given serious consideration as a planning concept.

(3) For the 5 parcels for which evidence is incomplete, the matter of whether an incinerator system, or septic tank system would be required is undeterminable from the evidence presented. Further soil borings this spring probably would be required or the matter could be left to the discretion of the Lincoln County Sanitarian.

While the development of such facilities is technologically possible the matter of enforcement is extraordinarily difficult. The conditions for wastewater disposal from those lots so affected should be clearly defined in the restrictive covenants so that no mis-understanding develops at the time the individual lot holder goes to the Lincoln County Health Department for a system permit.

Solid Waste - The area of this subdivision falls within a small sanitary landfill district known locally as the Happy's Inn District. This disposal site is six miles west, off Highway 2, and while maintenance and operation of this landfill has been something less than satisfactory, the facility does exist, and the homeowners will be contributing financially to its upkeep, and it does provide a relatively convenient location for the elimination of solid waste from the development.

The solid waste impact from recreational land use in this district is increasing rapidly; knowning the size of the locale, the way in which it is operated, and the control being exerted, it would have to be suggested that the sudden development of this project will have an adverse impact on the capability for this landfill to absorb any additional great amount of solid waste.

SECONDARY SERVICES

Electric power and telephone service lines are available in the area, however no plans have been advanced as to how these services are to be handled within the project area. Surface poles and wire could be aesethically objectionalbe. The possible entrenchment of such facilities probably would have short term water quality effects in the local Middle Thompson shoreline area and in Slimmer Creek.

ENVIRONMENTAL IMPACTS

The potential impact from a shoreline project such as this, are particularly possible with reference to the:

(1) Water quality in both surface and ground water occurrances.
(2) Fish & Wildlife uses of the area.
(3) Aesthetics, since this is one of the most attractive lakeshore parkland areas, visible from the highway, along the entire Kalispell to Libby highway route.
(4) Vegetation and soil. Because of its design and location this proposal would have to be considered a comparatively high density development. The soils and vegetation now noted are not particularly adaptable to such usage, and they cannot survive disturbance without severe limitation both to the lot users and the native environment.
(5) County, and in some cases State authorities, in the enforcement of environmental safeguards agreed to by a developer who has no further vested interest in a project once it is completely conveyed.

(6) Secondary impacts suggested whenever the question of fire protection, road maintenance, civil law enforcement, spring run-off, solid waste disposal, shoreline construction, or possibly schools is considered.

ADVERSE IMPACTS

The environmental condition with regard to soil and percolation rates; the ground water levels, ground level elevations, and land-water contact locations as submitted and attested to by the engineer-developers have already been specified in support of the water, sewage and solid waste systems.

From this emphasis it is obvious that the truly adverse impacts, possible from the approval of this project, could be expected upon:

(1) Water quality in the adjacent lakeshore surface water, ground water system, and in Slimmer Creek.

(2) Wildlife now utilizing the area.

In evaluating these factors the developer has stated that:

(1) The Lower Thompson Lake is not suffering from excessive eutrophication, that the ground water, shoreline information is accurate and that the addition of nutrients from drainfields would be limited naturally to short term, four months per year contributions.

(2) The proxemity of Logan Park and Highway 2 already severely limits fish and wildlife habitation in the area.

However, during the first hearing held on this proposed subdivision, the Fish and Game Department made the following observations with regard to adverse effects:

(1) Although Middle Thompson Lake was once classified as aligotriphic, it does not so qualify now. During the winter of 1972, a reading of 0.0 ppm dissolved oxygen was noted at 160 feet, a specific conductance of nearly 300 ų mhos at the surface and a total alkalinity ranging from 160 to 183 ppm. Late in July 1970, dissolved oxygen was only 0.3 ppm at 100 feet. According to Fish and Game Department standards, the lake is well on its way to eutrophication. The point was made that although ground water, shoreline information may (or may not) have been accurate for the time at which it was taken, it should not be accepted as specific unless a full years measurements and recordings are made. They feel that with the various seasonal fluctuations in in water levels there is no way the individual lot holders can be responsible for sewage without serious degradation of the aquatic environment. They also pointed out that the assumed short-time recreation orientation is not well founded. With retired people buying recreational homesites, increasing numbers of parcels are being occupied twelve months out of the year. They have suggested a covenant limiting occupying to no more than 3 months a year to insure temporary summer use.

(2) The development site is located in whitetail deer winter range. The increased human activity and movement in such a development will exclude deer from wintering in a much larger area than the development itself. Winter range is essential for survival of deer in the area. The extent of bottom lands where there is less snow and which has an edge effect created by mixtures of dense cover, and open areas, limits summer and fall seasons. In the winter time, a critical survival period, they are all crowded into small suitable areas which constitute only a small fraction of the total summer range.

Waterfowl breed and nest in the grassy areas which will be subdivided and the area that is partially flooded during high water. The development, human activity, and pets will eliminate this land use.

The largemouth bass nest immediately off shore of the development site and the partially flooded area. House lots of this density will result in numerous docks, water skiing starts and stops, which will eliminate this wildlife use. Slimmer Creek is inhabited year round by brook trout and cutthroat trout. Its fish population is all by natural reproduction and also is one of the few small streams which can provide spawning potential for trout in Middle Thompson Lake. If the development covenants do not prohibit stream alteration, removal of the Alder trees, which are both fish and wildlife cover, this section of the stream will be lost in terms of both usefullness and aesthetics.

ALTERNATIVES

(1) Disapproval of the entire subdivision on the somewhat tenuous grounds that regardless of plans, covenants or enforcement, the water quality in Middle Thompson Lake cannot be degraded any further by shoreline subdivision without violating the classification legally established for this body of water.

(2) Approval of the subdivision as presented, providing the limitations required for certain specified lots are defined in the proprietory restrictions and the enforcement of these limitations accepted by the County authorities as a reasonable and proper duty.

(3) Approval of the 15 lots which clearly appear to meet Department of Health criteria, and disapproval of the questionable remainder until such time as a community system is available to remove all sewage to a more remote interior location which is beyond dispute in the matter of ultimate effluent disposal.

(4) Approval of the subdivision as presented owing to the fact that the matter of sanitary sewage has been satisfactorily dispensed with for all lots by either septic tank or incinerator disposal with the remaining white water of such small volume and character as to be safely and legally distributed to the land in areas at least 100 feet from any surface stream or lake.

LONG TERM-SHORT TERM RELATIONSHIPS AND COMMITMENTS

The long term worth of this property is best represented by its existing occurrance as a protective shoreline (water quality) greenbelt and fish-wildlife habitat. It also has slight economic value as a low density recreational campsite. However, it is in the short term, most valuable to the landowner as a recreational-residential subdivision.

The commitment, if there is one, would be to the break-up of this landsite into ownerships which are difficult, if not impossible, to control generally, in terms of environmental degradation, and specifically in terms of water quality.

PROPOSED COVENANTS FOR MEADOW MOUNTAIN RANCH

The proposed covenants for Meadow Mountain Ranch shall include the following provisions:

(1) No further subdivision of lots.

(2) Sewage disposal and water supply in accordance with approved plans of State Health Department.

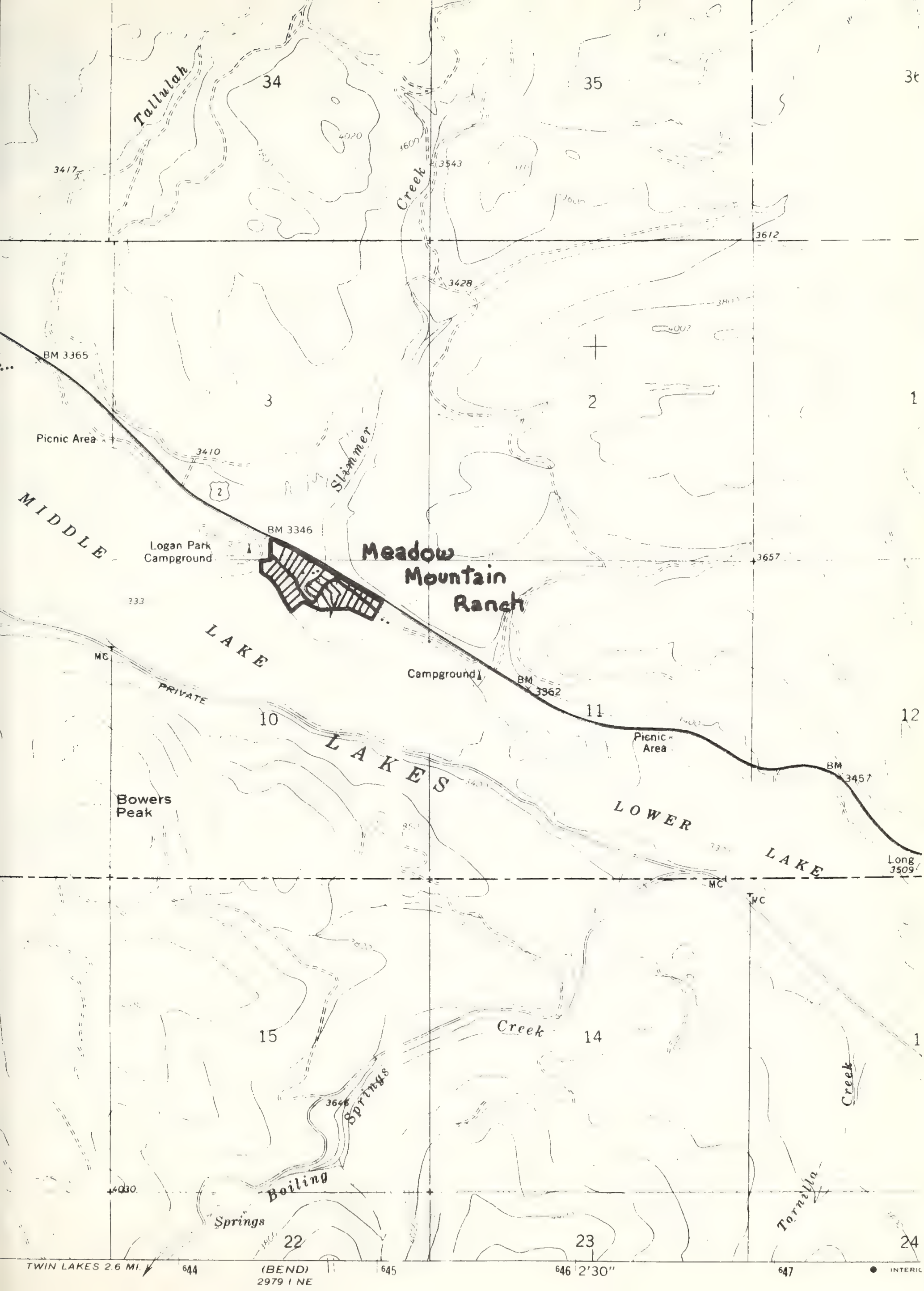
(3) Occupancy no to exceed four months per year. (120 days total)

(4) No dogs or cats allowed except on leash.

(5) Exterior fences must be maintained to prevent entrance of cattle into the subdivision.

It has been stated that the covenants are to be printed, exactly as shown above, on the plat to be filed with the Lincoln County Clerk and Recorders Office.

This Draft Environmental Impact Statement has been prepared by Wilbur O. Aikin, a Registered Professional Engineer and Economic Geologist. Data specifically required by regulation was provided by Mr. Dean Marquardt, P.E., owner-engineer, and from Eric Teitemen, engineer in the employ of the Marquardt firm. David Mendenhall, Registered Sanitarian for Lincoln County was consulted on the matter and additional information was extracted from a November, 1973 hearing held in Lincoln County, Montana.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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

KALISPELL REGIONAL OFFICE, BOX 1031, KALISPELL, MT 59901

John S. Anderson M.D.
DIRECTOR

3-1-74

February 22, 1974

Subject: Mountain View Mobile Manor Trailer Court

Gentlemen:

Enclosed is a final environmental impact statement for the Mountain View Mobile Manor Trailer Court, a proposed mobile home development east of Kalispell, Montana. This statement includes written comments received following the distribution of the draft statement in early November, 1973.

David Nunnallee
David A. Nunnallee, P.E.
Public Health Engineer
Environmental Sciences Division
Kalispell Regional Office

DAN/kmh
Enclosure

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

Final

ENVIRONMENTAL IMPACT STATEMENT

for

MOUNTAIN VIEW MOBILE MANOR

East of Kalispell, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3); the act controlling the licensing of Trailer Courts, Section 69-5602; and the act to control water pollution, Section 69-4801 to 4827, the following statement is prepared by the State Department of Health and Environmental Sciences concerning Mountain View Mobile Manor Trailer Court, East of Kalispell in Flathead County, Montana, for which a submittal has been received requesting a license to operate as an approved trailer park facility.

DESCRIPTION OF PROJECT & PROPOSED ACTION

The Montana State Department of Health and Environmental Sciences has received a request for approval and licensing of a 24-unit trailer court in Evergreen, East of Kalispell. The area, shown on the attached map, includes about 3.8 acres, and is 230 to 300 feet East of LaSalle Road, and immediately West of the Springdale Subdivision.

The applicant-owner is Mr. Harry Geis of Evergreen, and plans, specifications and data were supplied by his engineer, D.K. Marquardt, of Kalispell.

This impact statement is being prepared as a result of public concern by neighboring residents and verbal request of the Flathead County Commissioners.

TOPOGRAPHY & SOILS

The proposed development area is fairly flat, sloping slightly to a marshy area which passes through the east-central portion of the land. The marsh has largely been filled.

The soils, according to the S.C.S. Flathead Valley Soils Survey, are a mixture of Kiwanis and Birch sandy loams, with "moderate" septic tank use restrictions due to high groundwater. The groundwater is discussed more fully later.

URROUNDING DEVELOPMENT

he proposed trailer court is largely surrounded with existing development. LaSalle oad, to the West, is rapidly developing into a commercial highway strip. To the ast, Springdale Subdivision, subdivided in the 1950's, consists of some 130 lots on acres, and much of it is developed.

any of the residents of Springdale have expressed concern about the proposed trailer ourt because of ingress - egress problems, dust from unsurfaced roads, and aesthetics. he comments are discussed under "Public Response" later in this statement.

ATER SUPPLY

ater for the development would be supplied by the Evergreen Water Company, which is high quality, dependable source of water, and entirely acceptable for a trailer ourt.

EWAGE DISPOSAL

he proposed method of sewage disposal is by means of partially elevated sewage drainields, located on the higher portions of the land. By installing the drainfield line ery shallow in the original soil, and covering it to a depth of two feet, additional rotection against pollution of the fairly shallow groundwater is provided.

field inspection on July 3rd last, of a test hole on the low part of the site, revealed roundwater at a depth of 7 feet. The groundwater had dropped somewhat since the mid-une high water. As such groundwater levels are marginal from a sewage disposal standoint, the developer agreed to pump the sewage to the higher ground to gain one or two eet elevation, and to construct the slightly elevated drainfields to gain another wo feet. Such provisions would easily meet this Department's groundwater separation equirements for subsurface sewage disposal.

ercolation rates on the site are entirely adequate.

ocations of the four proposed sewage drainfields are approximately shown on the ttached sketch.

HE REVISED PROPOSAL

ince the draft impact statement was distributed, several changes have been made in the lans for Mountain View Mobile Manor. Some of the changes are as follows:

1. Number of trailer spaces was reduced from 25 to 24.

2. Access will be from LaSalle Road. The nearest road to the Springdale Subdivision would end in a cul-de-sac some 20 feet from the existing Springdale alleyway.

3. Roads will be treated for dust control.

4. The approximate layout of the proposed court is shown on the attached drawing.

5. Roadways will be 27 feet, two way, with parking on one side.

ther items which were not clearly stated in the draft statement are:

6. The nearest sewage drainfield would be some 130 feet from the swamp waters (east portion of project, serving 4 trailers). Six trailers would be served by a drainfield 280 feet from the swamp, nine others would be on a system some 250 feet from the swamp, and the remaining five would be on a system about 260 feet from the swamp. State regulations require such spacing to be 100 feet minimum.

7. No trailer sites are planned on swamp fill areas. All drainfield tiles would be placed in undisturbed soil.

8. State regulations require all trailer courts to control dogs, cats or other pets from running at large or committing a nuisance. Violations of this regulation should be reported to the State Health Department which would require the court owner to make the necessary controls. Violation of this or any portion of the trailer court regulations is punishable by fine and may result in revocation of the court's license to operate.

9. No provisions are shown on the plat for play areas for children. State regulations do not require play areas. Approximately 40% of the site would remain undeveloped (the marshy area) and could feasibly be used by the children for an undeveloped play area.

UBLIC RESPONSE

any public responses were received in opposition to the development of Mountain View obile Manor. Most responses were from the residents of Springdale, and existing subivision immediately East of the development site. In all, twenty-three private reponses were received directly or were obtained from the Flathead County Areawide lanning Organization, and one State response was received from the Fish & Game Departent. All twenty-three private responses were strongly opposed to the development, and anged from simple statements of opposition, to lengthy and detailed discussions against he project. Rather than summarize each letter, the reasons for opposing the development re summarized as follows (most letters expressed several concerns):

PPOSITION	Number of Letters Expressing this Opposition
vercrowding of schools	16
otential ground or surface water pollution	12
dverse effect on existing property values or resale potential	11
oo many trailer courts are in Evergreen already	11
dverse effect on tax base	10
nadequate access to proposed trailer court	10
o provisions for play areas for children	8
ncreased traffic in the area	6
afety hazard for children (traffic)	6
ensity too high for adequate sewage disposal	5
nterference with natural drainage	5
ad effect on the area - no specifics	5
eterioration of aesthetics	4
nflux of transients; possible problems	3
ets would be running loose	2
f approved, officials would be delinquent in duties	2
estruction of natural game preserve	1
mpact statement not specific enough about proposal	1
nadequate restrictive covenants or rules	1
oning regulations should be enforced	1
f on floodplain, should not be approved	1
nstable ground unsuitable for development	1
pposed to project - no specific reason stated	1

n addition to the above comments, the Montana Fish & Game Department offered the following:
'This area is in the center of the 'Evergreen Community'. There will be little if any di-
ect effects on wildlife. Sewage disposal should be designed to guarantee that nutrients
ill not reach the groundwater".

vercrowding of schools - was the most commonly voiced opposition to the project. Recent
ailures to pass school levies have apparently placed the operation of Evergreen schools
n jeopardy. Such considerations are in the hands only of the Flathead County Areawide
lanning Organization and/or the Kalispell City-County Planning Board.

round or surface water pollution - Twelve letters expressed concern over pollution of
round water or surface water from septic tank-drainfield sewage disposal. In this re-
ard, the entire Evergreen area east of LaSalle Road has more than its share of problems,
nd the severity of these problems varies significantly from year to year. To protect
he ground water from sewage influence, the State Department of Health has adopted a regu-
ation of four feet minimum spacing between sewage drainfields and seasonal high ground-
ater. Many feel this spacing is inadequate, the writer included, but until regulations

are changed the Department can require no more than the minimum spacing. Changing this regulation has met with stiff resistance in the past, particularly from developers and landowners in the Evergreen area, as even a two-foot increase would delineate much of the Evergreen area as unsuitable for septic tank use. The sewage disposal arrangements discussed earlier do meet existing State regulations.

Property Values - A probable decrease in property values in the Springdale area drew comments from eleven respondents. This is probably a valid concern, but is totally out of this Department's jurisdiction.

Too Many Trailer Courts in Evergreen - was a concern voiced by eleven letters. There is little question that Evergreen has much more than its geographic share of trailer courts. However, this is not a matter of manipulation, zoning or official action. It is simply a result of most of the trailer court proposals being in the Evergreen area. Apparently the economics or market are such that Evergreen is the most favorable area to operate a trailer court. The same State regulations are applied to Evergreen trailer courts as to any trailer court proposal. Zoning, which is nonexistant in the Evergreen area, is the only realistic way to control development of mobile home parks. Attempting to control the approval of trailer courts through health authorities is a back-door approach to a problem which should be handled by zoning or planning authorities. However such an approach is often used both in Montana and in other states because it does not involve controversial zoning. Limited Health Department authority makes this a universally ineffective substitute for zoning.

Adverse Effect on Tax Base - was considered a problem by ten letter writers. Again, this may be a valid concern, but is not under this Department's jurisdiction.

Access, traffic, safety - Inadequate access to the proposed trailer court was considered important to 10 writers, while 6 opposed increased traffic, and 6 expressed fears for safety of children because of the traffic. As the court access would now be entirely from LaSalle Road, these concerns should be essentially satisfied.

No provision for play areas - was voiced by 8 letters. As discussed earlier, no formal play area is shown on the plans, but some 40% of the Harry Geis land would remain undeveloped and accessible to the children.

Density too high for adequate sewage disposal - was considered a problem in 5 letters. The proposed lots are a little larger than in the average trailer court, and all required State spacings would be satisfied. Incidentally, 24 trailers on some 3.8 acres is considerably less dense than ultimate development of adjacent Springdale Addition which consists of 130 lots on 9.0 acres according to County records. Both areas employ the same type of sewage disposal.

Interference with natural drainage - considered a problem by 5 writers, would be somewhat alleviated by a culvert which will be placed in the causeway. The owner maintains that the marsh area flows only during periods of flooding, and normally rises and falls with the groundwater. He also maintains that the swamp is filled on other lands upstream of the development.

Aesthetics, again a topic not under this Department's control, were thought to be in jeopardy by 4 writers. Five others felt the project would have a bad effect on the area.

Influx of transients and associated rise in local crime was felt to be a problem by 3 persons.

Pets running loose is considered a problem by two persons. As discussed earlier, pets creating a nuisance in trailer courts violates State regulations and would be corrected when reported.

Delinquent officials - Two writers felt State or County officials would be delinquent in their duties if the project were approved. In this regard, it should be remembered that the State Health Department has few of the broad public protection powers which many people feel it has. In fact, the Department is very limited in its authority by laws and regulations, and one portion of the State trailer court regulation dictates that the Department must approve any proposed trailer court which satisfies the regulations.

Destruction of natural game preserve was felt important by one respondent. While any surface waters will carry occasional waterfowl or muskrats, nearby development usually limits its value as habitat. The Montana Fish & Game Department felt the project would have little effect on wildlife.

Draft Impact Statement was not specific enough according to one letter. The writer agrees, and hopefully this has been remedied in this final statement.

Inadequate restrictive covenants or rules were felt to be a problem by one writer. While the State regulations are fairly elaborate relative to water, sewer, health, pollution, etc., it is true that there are few regulations on aesthetics, behavior of the occupants, etc. Whether or not covenants or rules are established is up to the owner, and there would be little point in requiring such rules as only the owner would have enforcement powers over them.

Zoning regulations should be enforced according to one writer. However, there is no zoning in this area.

Projects on the floodplain should not be approved according to one writer. According to the 1969 Corps of Engineers delineation, the project is not on the 100-year floodplain. According to recent re-delineations, it is partially located on the 100-year floodplain, but this matter is still in arbitration. Since the Health Department's floodplain regulation cannot be applied retroactively to a trailer court for which plans were received before the regulation became effective, the floodplain concept would not affect this project anyway. Incidentally, the Springdale area is in a somewhat worse floodplain situation than the proposed trailer court according to the floodplain maps.

Unstable ground is unsuitable for development according to one writer, who apparently felt trailers would be located on marsh fill. According to the plans, such would not be the case.

SUMMARY

The preceeding paragraphs essentially discribe the problems, some with and others without apparent solutions. Many of the concerns are out of the hands of this Department. In summary, one important point is that this Department must approve the trailer court if it has met all of the State regulations. It appears that this is the case, and State Health Department approval and licensing is recommended at this time.

PROBABLE IMPACT ON ENVIRONMENT

The social environment, ie, schools, utilities, etc., would experience a sudden influx of some 24 families into a small concentrated area. This impact, particularly on the local schools, could be substantial. Special provisions in this regard are under the authority of the Flathead County Areawide Planning Organization.

No special or particularly sensitive environmental conditions are known to exist on the proposed site.

Road dust, a concern of local residents, would be controlled by dust coating the roads.

SHORT TERM vs. LONG TERM USES OF THE ENVIRONMENT

Approval and licensing of the proposed trailer court will effectively commit 3.8 acres of land to trailer court use, to the exclusion of all other uses. While a trailer court has few permanent structures, and from that standpoint could be quickly converted to some other land use, this rarely occurs until development density makes the trailer court less profitable than some other use. Practically, development of the land should be considered a long term use of the site.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The only resource which would be committed would be 3.8 acres of land. While not irreversible or irretrievable, this commitment probably would be of long term duration.

ALTERNATIVES TO PROPOSED ACTION

The proposed site, being located in a developing area, could be expected to have some kind of development in the near future whether or not a trailer court is constructed. Such development would be dictated by economics. The alternatives for such development are many, and there is little to be gained by trying to list all such possibilities here.

SOURCES OF INFORMATION

A personal knowledge of the area, and a field inspection of the site, aided in the preparation of this statement. Also, information and data supplied by the developer's engineers was used. In addition, the following references were used:

1. Montana Bureau of Mines & Geology, "Basic Water Data Report No. 3, Kalispell Valley, Montana", 25 pp. & map, (1966).

2. U.S. Dept. of Agriculture, Soil Conservation Service, "Soil Survey, Upper Flathead Valley Area, Montana", 67 pp. + 40 maps. (1960).

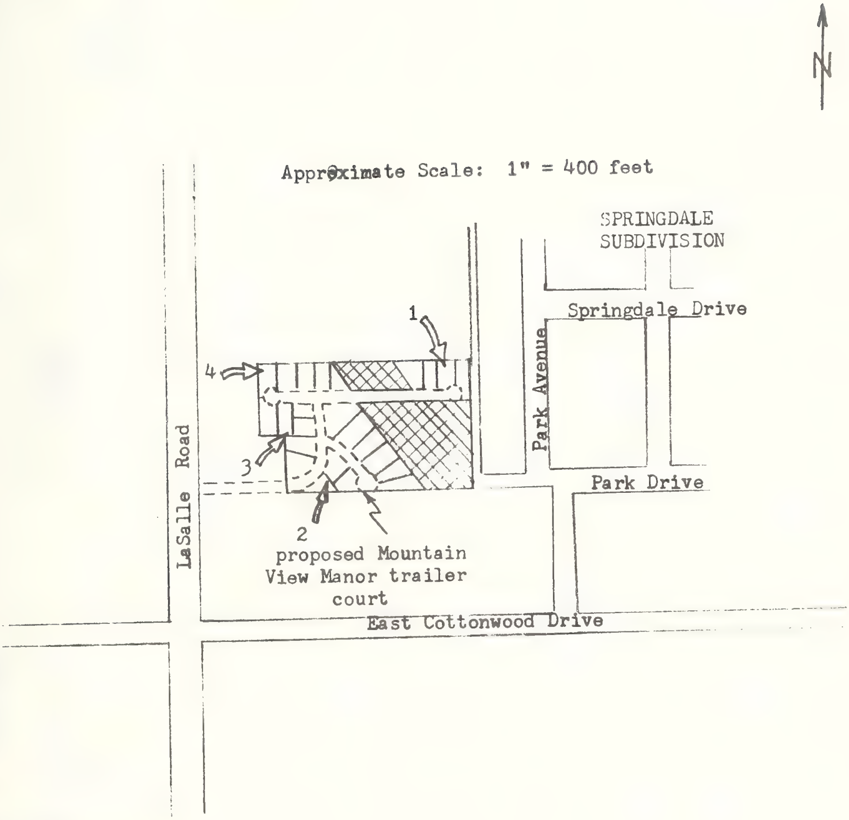
3. U.S. Dept. of Agriculture, Soil Conservation Service, "Engineering Properties & Soil Interpretations For Use In Resource Planning & Development; A Supplement to Soil Survey, Upper Flathead Valley Area, Montana", 34 pp. (1970).

THIS STATEMENT HAS BEEN PREPARED BY:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Washington and Montana.

COPIES SENT TO:

1. Mr. Harry Geis, 127 LaSalle Rd., Kalispell, MT 59901
2. Mr. Fletcher Newby, Montana Environmental Quality Council, Helena, MT 59601
3. Mr. Jim Posewitz, Montana Fish & Game Department, Helena, MT 59601
4. Montana State Dept. of Health & Environmental Sciences, Kalispell, MT 59601
5. Mr. Jim Peterson, State Dept. of Health & Environmental Sciences, Helena, MT 59601
6. Montana State Dept. of Intergovernmental Relations, Division of Planning and Economic Development, Capitol Station, Helena, MT 59601
7. Montana State Library, 930 East Lyndale Ave., Helena, MT 59601
8. Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena, MT 59601
9. Board of County Commissioners, Flathead County Courthouse, Kalispell, MT 59901
10. Flathead Areawide Planning Organization, 3 Ford Bldg., Kalispell, MT 59901
11. B.C. McIntyre, MD, Flathead County Health Officer, Box 427, Whitefish, MT 59937
12. Les Espeland, RS, Flathead County Sanitarian, Box 919, Kalispell, MT 59901
13. Mr. Maurice Eddie, Evergreen Water Co., 236 LaSalle Rd., Kalispell, MT 59901
14. Student Environmental Research Center, Room 212, Venture Center, Missoula, MT 59801
15. Evergreen Advisory Board, Attn: Mr. Vern Dye, 45 Meadowlark Dr., Kalispell, MT 59901
16. Springdale Addition Improvement Ass'n., Attn: Orin Bleken, 131 Cedar Dr., Kalispell
17. Mrs. K.D. Black, 125 Park Ave., Kalispell, MT 59901
18. Mrs. Jerry Corbett, 120 Park Ave., Kalispell, MT 59901

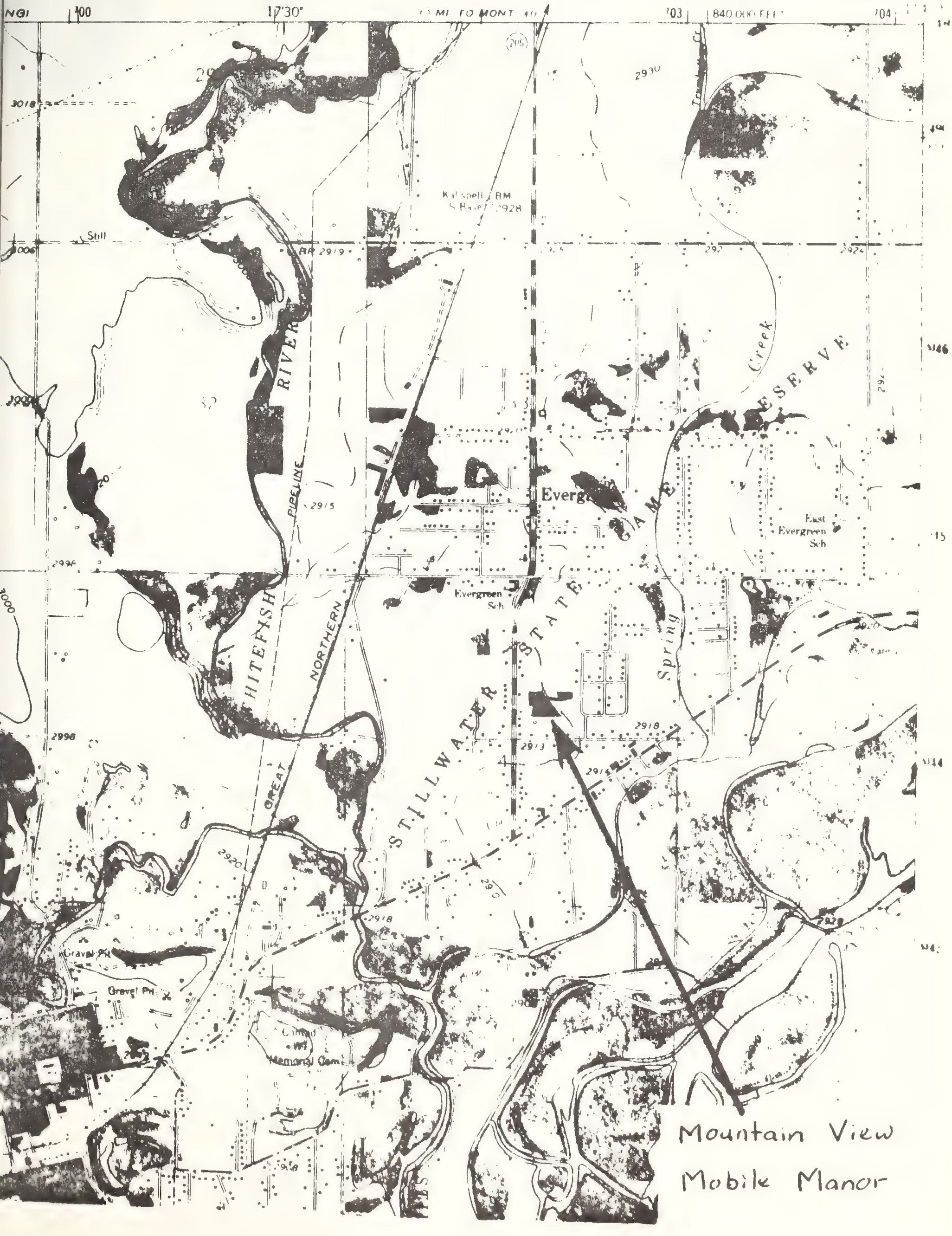


▨ Land to remain undeveloped

- - - Proposed roads

2 ↗ Locations of proposed drainfields

KALISPELL QUADRANGLE
MONTANA-FLATHEAD CO
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mountain View
Mobile Manor

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Mountain View

STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

KALISPELL REGIONAL OFFICE, BOX 1031, KALISPELL, MT 59901

John S. Anderson M.D.
DIRECTOR

NOV 12 1973

November 6, 1973

Subject: Mountain View Mobile Manor Trailer Court

Gentlemen:

Enclosed is an environmental impact statement for the Mountain View Mobile Manor Trailer Court, a proposed mobile home development now under construction for approval east of Kalispell, Montana.

Under Montana law, a person or agency has 30 days to submit comments and/or supply additional information.

Following the statutory period, the project will be reviewed in light of comments received that are applicable under Montana law.

Sincerely,

David A. Nunnallee

David A. Nunnallee, P.E.
Public Health Engineer
Environmental Sciences Division

DAN/kmh
Enclosure

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

Draft

ENVIRONMENTAL IMPACT STATEMENT

for

MOUNTAIN VIEW MOBILE MANOR

East of Kalispell, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling the licensing of Trailer Courts, Section 69-5602; and the act to control water pollution, Section 69-4801 to 4827, the following statement is prepared by the State Department of Health and Environmental Sciences concerning Mountain View Mobile Manor Trailer Court, East of Kalispell in Flathead County, Montana, for which a submittal has been received requesting a license to operate as an approved trailer park facility.

DESCRIPTION OF PROJECT & PROPOSED ACTION

The Montana State Department of Health and Environmental Sciences has received a request for approval and licensing of a 25-unit trailer court in Evergreen, East of Kalispell. The area, shown on the attached map, includes about 3.8 acres, and is 230 to 300 feet East of LaSalle Road, and immediately West of the Springdale Subdivision.

The applicant-owner is Mr. Harry Geis of Evergreen, and plans and specifications and data were supplied by his engineer, D.K. Marquardt, of Kalispell.

This impact statement is being prepared as a result of public concern by neighboring residents and verbal request of the Flathead County Commissioners.

TOPOGRAPHY & SOILS

The proposed development area is fairly flat, sloping slightly to a marshy area which passes through the east-central portion of the land. The marsh has largely been filled.

The soils, according to the S.C.S. Flathead Valley Soils Survey, are a mixture of Kiwanis and Birch sandy loams, with "moderate" septic tank use restrictions due to high groundwater. The groundwater is discussed more fully later.

SURROUNDING DEVELOPMENT

The proposed trailer court is largely surrounded with existing development. LaSalle Road, to the West, is rapidly developing into a commercial highway strip. To the East, Springdale Subdivision, subdivided in the 1950's, consists of some 130 lots on 9 acres, and much of it is developed.

Some of the residents of Springdale have expressed concern about the proposed trailer court because of ingress - egress problems, dust from unsurfaced roads, and aesthetics.

Reportedly, to solve the access problems, the developer has agreed to provide an access road from LaSalle Road, rather than entering through Springdale. Such a modification would eliminate two of the proposed 25 trailer locations. The plans on file in this office do not reflect these new changes yet.

WATER SUPPLY

Water for the development would be supplied by the Evergreen Water Company, which is a high quality, dependable source of water, and entirely acceptable for a trailer court.

SEWAGE DISPOSAL AND GROUNDWATER

The proposed method of sewage disposal is by means of special partially elevated sewage drainfields, located on the higher portions of the land. By installing the drainfield line very shallow in the original soil, and covering it to a depth of two feet, additional protection against pollution of the fairly shallow groundwater is provided.

A field inspection on July 3rd last, of a test hole on the low part of the site, revealed groundwater at a depth of 7 feet. The groundwater had dropped somewhat since the mid-June high water. As such groundwater levels are marginal from a sewage disposal standpoint, the developer agreed to pump the sewage to the higher ground to gain one or two feet elevation, and to construct the above described drainfields to gain another two feet. Such provisions would meet this Department's groundwater separation requirements for subsurface sewage disposal.

Percolation rates on the site are entirely adequate.

PROBABLE IMPACT ON ENVIRONMENT

The impact of this project on the natural environment is thought to be very minor as the surrounding area is moderately to heavily developed. Nor will the construction of a trailer court in this area reflect any substantial change in land use patterns, except on a very local scale, as trailers and trailer courts abound in the Evergreen area.

The social environment, ie, schools, utilities, etc., would experience a sudden influx of some 25 families into a small concentrated area. This impact, particularly on the local schools, could be substantial. Special provisions in this regard are under the authority of the Flathead County Areawide Planning Organization.

No special or particularly sensitive environmental conditions are known to exist on the proposed site.

Road dust, a concern of local residents, would be controlled by dust coating the roads.

SHORT TERM vs. LONG TERM USES OF THE ENVIRONMENT

Approval and licensing of the proposed trailer court will effectively commit 3.8 acres of land to trailer court use, to the exclusion of all other uses. While a trailer court has few permanent structures, and from that standpoint could quickly be converted to some other land use, this rarely occurs until development density makes the trailer court less profitable than some other use. Practically, development of the land should be considered a long term use of the site.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The only resource which would be committed would be 3.8 acres of land. While not irreversible or irretrievable, this commitment probably would be of long term duration.

ALTERNATIVES TO PROPOSED ACTION

The proposed site, being located in a developing area, could be expected to have some kind of development in the near future whether or not a trailer court is constructed. Such development would be dictated by economics. The alternatives for such development are many, and there is little to be gained by trying to list all such possibilities here. Some alternatives for non-development are listed as follows:

1. No development

   The area could be left in its existing state. The economics of the situation work against this, and as the area has already been scraped and modified, there is little to be gained by no development.

2. Agricultural use

   The area is too small and too surrounded with development to be of much use as agricultural land.

3. Preservation of the area

   Some supporting agency or organization could purchase and preserve the area. As it is not in its natural state, there is little reason to do so, except perhaps to create a community park or recreation facility.

SOURCES OF INFORMATION

A personal knowledge of the area, and a field inspection of the site, aided in the preparation of this statement. Also, information and data supplied by the developer's engineers was used. In addition, the following references were used:

1. Montana Bureau of Mines & Geology, "Basic Water Data Report No. 3, Kalispell Valley, Montana", 25 pp. & map, (1966).

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THIS STATEMENT HAS BEEN PREPARED BY:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Washington and Montana

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15. Evergreen Advisory Board, Attn: Mr. Vern Dye, 45 Meadowlark Dr., Kalispell, MT 59901
16. Springdale Addition Improvement Ass'n., Attn: Orin Bleken, 131 Cedar Dr., Kalispell
17. Mrs. K.D. Black, 125 Park Ave., Kalispell, MT 59901
18. Mrs. Jerry Corbett, 120 Park Ave., Kalispell, MT 59901

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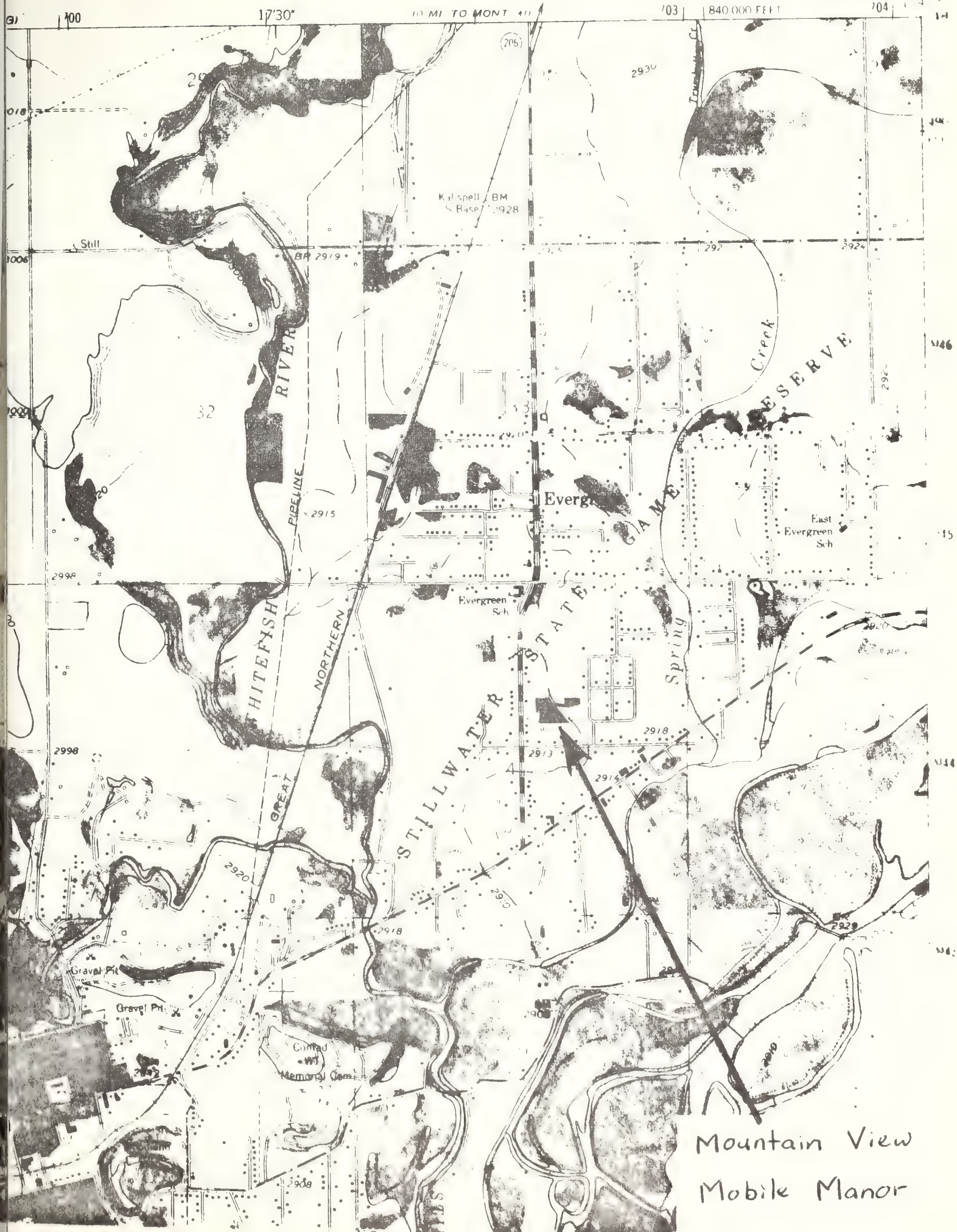

Mountain View
Mobile Manor

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March 1, 1974

Draft

Environmental Imapct Statement

for

Outback Mobile Home Settlement

a proposed trailer court

near Olney, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 to 69-5005; and the act to control water pollution, Section 69-4801 to 4827, the following impact statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Outback Mobile Home Settlement located near Olney, in Flathead County , Montana. Under Montana Law, any person or agency has thirty days to submit comments and /or supply additional information with regard to said project. An additional fifteen days may be granted, upon written request, to any person or agency in need of time to prepare or research a response.

DESCRIPTION OF PROJECT AND PROPOSED ACTION

The proposed development is a 41 space trailer court occupying 7.5 acres, and located in the NE ¼, NW ¼, NE ¼, Sec. 4, T 31N, R23W, PMM. The site is about 0.7 mile west of U. S. Highway 93, and about 5 miles south of Olney. The development would border the State Forest to the north, and roughly half of the proposed site is presently cleared and in use as pasture by the owners. The owner-developer is Ronald Brist. The property on which the development would be located includes the junction of Logan Creek and Good Creek, although the proposed trailer court is no closer than 600 feet to either creek.

Access would be by dirt road 0.7 mile from U. S. Highway 93, running along the section line betweensections 3 and 34, then 4 and 33. (see attached map)

WATER SUPPLY

The proposed water supply would consist of a drilled well and pressure storage tanks, which would comply with State standards. Under pending federal legislation, water supplies such as this will probably be designated as public utilities in the near future, and will be required to have a licensed water operator. This function is normally assumed by the development owner.

TOPOGRAPHY, SOILS, AND SEWAGE DISPOSAL

The topography in the development area is quite flat with about 4 feet of relief, except for about one acre on the southeast corner which drops an additional six feet.

The owners report that no part of the proposed trailer court site has flooded.

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

The area, which appears low and flat, is actually sloping upward slightly from the creeks. Two test holes were dug to a depth of ten feet and no groundwater was encountered. However, this was done in August of 1973, one of the driest months of an exceptionally dry year. According to soil logs, the soil consists of interspersed clayey and sandy soils. Percolation tests at 5 sites showed absorption results of 2 to 26 minutes per inch, which ranges from fast to slow percolation. Soil containing some clay is known to be more efficient in removing nutrients, particularly phosphorus, from sewage effluents, than are gravelly soils.

Proposed sewage disposal would be by means of septic tanks and drainfields. The proposed drainfield sites are located on the higher portions of land and would number nine upon complete development. The actual development will probably be staggered. To properly dispose of sewage in clayey soils requires enlarged drainfield systems, and such have been designed for this project.

SURROUNDING DEVELOPMENT

The surrounding area is undeveloped. Several farms are located in the area, particularly to the East.

PROBABLE IMPACT ON THE ENVIRONMENT

Full development of the proposed trailer court will result in the influx of forty-one families into a presently undeveloped area. THe impacts will be those normally associated with increased populaltion. Access by means of dirt roads could result in considerable dust. With 25 new families in the area, the quality of hunting and fishing in this remote area would be expected to suffer. Fishing in nearby Good Creek, is probably very poor now anyway because of very extensive stream bed channelization by the property owners last summer.

SHORT TERM VS. LONG TERM USES OF THE ENVIRONMENT

Few permanent structures are involved in the development of a trailer court. However, the approval and licensing of a trailer court entitles the owners to an unlimited time duration for operation, subject only to annual license renewal. As such, approval of this trailer court constitutes a long-term commitment of the land politically if not physically. Other uses of the land, such as grazing, farming, or timber production would be lost.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Except for a political commitment of 7.5 acres of land, no commitment of resources is envisioned in this project.

ALTERNATIVES TO PROPOSED ACTION

1. No Development
   The land could remain undeveloped. Perhaps half of the land is already cleared, however.
2. Agricultural Use
   The land could continue to be used for agricultural purposes. Except as marginal grazing land, the land appears unproductive, and would probably require irrigation and perhaps fertilization or soil conditioners.

3. Timber Land
   The value of the land for timber production is not known. There is timber on part of the land, but its quality and age is not known. Judging from the soils, timber probably grows slowly.
4. Preservation of the Area
   The area could be set aside as a preserve. This would require a sponsor and presumably a reason for preserving the area. The value of the land as game habitat is not known, and comments in this regard are solicited from the State Department of Fish and Game.

SOURCES OF INFORMATION

A personal inspection of the area, plus information provided by Dean K. Marquardt, engineer and surveyor for the project, was used in the preparation of this statement.

THIS STATEMENT HAS BEEN PREPARED BY:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Montana and Washington.

DISTRIBUTION LIST ENVIRONMENTAL IMPACT STATEMENTS

* mandatory on mailing list

Mr. Ronald Brist, P.O.Box 114, Olney, Montana
Mr. Fletcher Newby, Montana Environmental Quality Council, Helena (2 copies)
Montana Fish and Game Department, Helena Attn: Mr. Jim Posewitz
Mr. Jim Gragg, State Forest, Highway 93 North, Kalispell, Mt. 59901
Montana State Dept. of Health and Environmental Sciences, Kalispell
Montana State Dept. of Health and Environmental Sciences, Helena, Attn: Art Clarkson
Montana State Dept., Intergovernmental Relations, Division of Planning and Economic Development, Capitol Station, Helena
Montana State Library, 930 E. Lyndale Ave., Helena, Mt. (send 6 copies)
Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
U.S.F.S. Forest Supervisor, Flathead National Forest, 290 N. Main, Kalispell
Board of Couny Commissioners, Flathead County, Kalispell, Mt. 59901
Flathead County Areawide Planning Board; 3 Ford Building, Kalispell
B.C.Mcintyre, M.D , Flathea d County Health Officer, P.O.Box 427, Whitefish, Mt. 59937
Mr. Les Espeland, Flathead County Sanitarian, P.O.Box 919, Kalispell Mt. 59901
Mr. Wayne Herman, President, Flathead Wildlife In., P.O.Box 4, Kalispell, Mt. 59901
Mr. John Cochrane, Flathead Lakers, In., Box 447, Big Arm, Mt. 59910
Dr. Lawrence Sonstelie, President, Flathead Valley Community College, Ecology Club Kalispell, Mt. 59901
Student Environmental Research Center, Room 212, Venture Center, Missoula
Mr. Bob Muth, Montana Wilderness Association, Flathead Chapter, Rt. 4 Kalispell
Dr. John Tibbs, Director, U. of Montana Biological Station, Yellow Bay, Mt. 59911
Trout Unlimited, c/o Mr. Gary Hanson, Secy. 136 First Ave. West, Kalispell
Flathead Tomorrow, P.O.Box 173, Bigfork, Mt. 59911
Mr. Dean Marquardt, 809 First Ave. E., Kalispell, Mt. 59901
Ms. Beverly Boe, 2 Sixth Ave. West, Kalispell, Mt. 59901

TALLY LAKE QUADRANGLE
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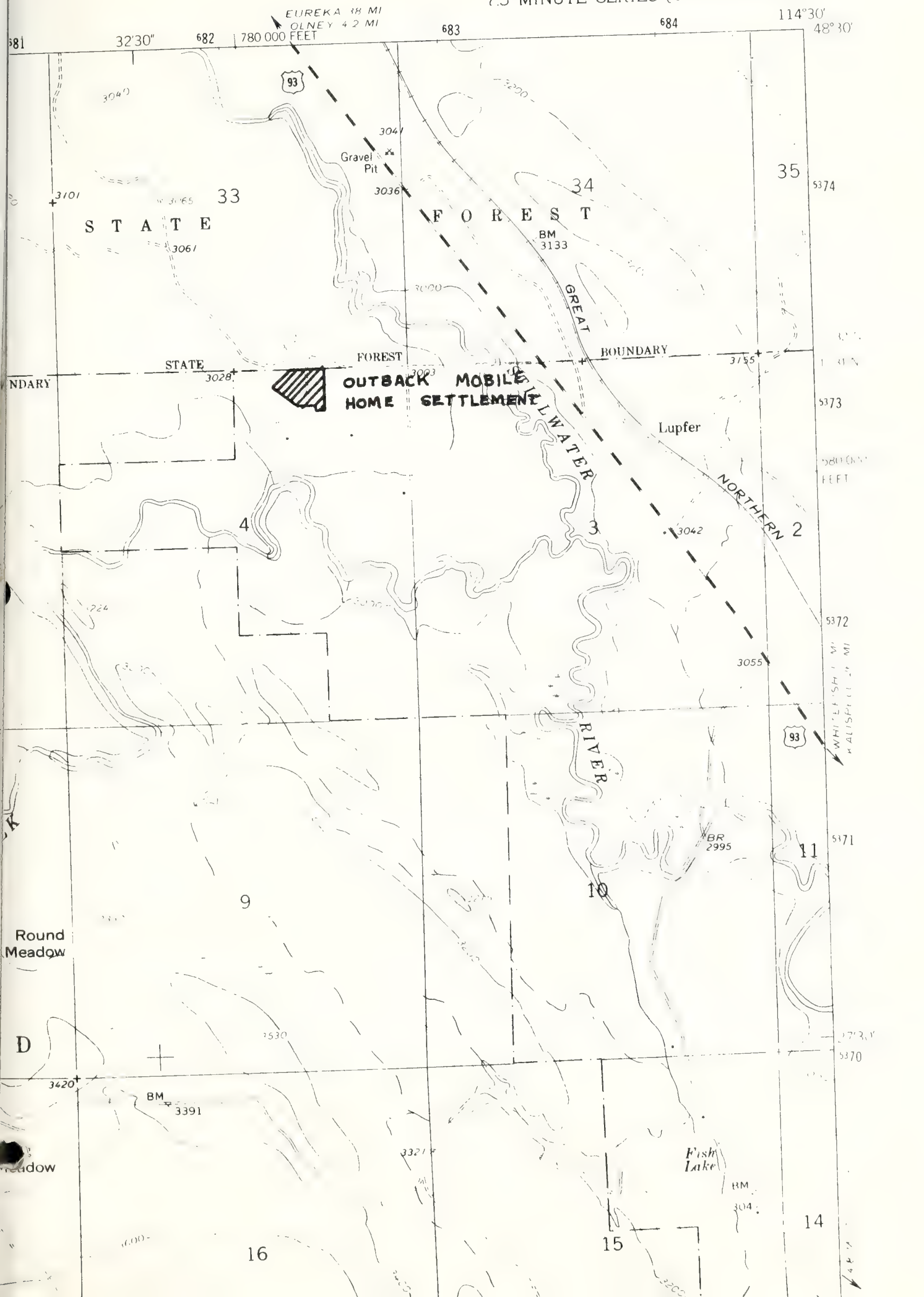

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STATE DOCUMENTS

MAY 20 1974

FINAL

ENVIRONMENTAL IMPACT STATEMENT

FOR

OUTBACK MOBILE HOME SETTLEMENT
A Proposed Trailer Court Near Olney, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 to 69-5005; and the act to control water pollution Section 69-4801 to 4827, the following final impact statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Outback Mobile Home Settlement located near Olney, in Flathead County, Montana.

DESCRIPTION OF PROJECT AND PROPOSED ACTION

The proposed development is a 41 space trailer court occupying 7.5 acres, and located in the NE¼, NE¼, Sec. 4, T 31N, R 23W, PMM. The site is about 0.7 miles west of U.S. Highway 93, and about 5 miles south of Olney. The development would border the State Forest to the north, and roughly half of the proposed site is presently cleared and in use as pasture by the owners. The owner-developer is Ronald Brist. The property on which the development would be located includes the junction of Logan Creek and Good Creek, although the proposed trailer court is no closer than 600 feet to either creek.

Access would be by dirt road 0.7 miles from U.S. Highway 93, running along the section line between sections 3 and 34, then 4 and 33. (See attached map).

WATER SUPPLY

The proposed water supply would consist of a drilled well and pressure storage tanks, which would comply with State standards. Under pending federal legislation, water supplies such as this will probably be designated as public utilities in the near future, and will be required to have a licensed water operator. This function is normally assumed by the development owner.

TOPOGRAPHY, SOILS, AND SEWAGE DISPOSAL

The topography in the development area is quite flat with about 4 feet of relief, except for about one acre on the southeast corner which drops an additional six feet. The owners report that no part of the proposed trailer court site has flooded.

The area, which appears low and flat, is actually sloping upward slightly from the creeks. Two test holes were dug to a depth of ten feet and no ground water was encountered. However, this was done in August, 1973, one of the driest months of an exceptionally dry year. According to soil logs, the soil consists of interspersed clayey and sandy soils. Percolation tests at 5 sites showed absorption results of 2 to 26 minutes per inch, which ranges from fast to slow percolation. Soil containing some clay is known to be more efficient in removing nutrients, particularly phosphorus, from sewage effluents, than are gravelly soils.

Proposed sewage disposal would be by means of septic tanks and drainfields. The proposed drainfield sites are located on the higher portions of land and would number nine upon complete development. The actual development will probably be staggered. To properly dispose of sewage in clayey soils requires enlarged drainfield systems, and such have been designed for this project.

SURROUNDING DEVELOPMENT

The surrounding area is undeveloped. Several farms are located in the area, particularly to the east.

The area just west of the development (see map) is scheduled for "potstick" timber harvest in the very near future. It is expected that the resulting noise, dust and logging traffic will be in disaccord with the proposed trailer court.

PUBLIC RESPONSE TO DRAFT STATEMENT

Written responses to the draft statement were received from the U.S. Forest Service, Montana Dept. Natural Resources & Conservation, Montana Environmental Quality Council, and Flathead County Health Department, and a verbal response was received from the Montana Dept. of Fish & Game. The written responses are attached hereto. The comments are summarized as follows:

Montana Fish & Game (Verbal) - The area provides some wildlife habitat, but main concern is that no sewage pollutants reach Logan or Good Creeks. The area is within a snow belt, which limits the game range quality.

The writer notes that the proposed sewage facilities apparently meet this Department's ground water and surface water spacing requirements and should thus protect the creeks from pollution. It is also noted that trailer court regulations prevent nuisances from dogs or other pets. If pets are not restrained and cause nuisances, such as chasing deer, the license to operate could be revoked.

U. S. Forest Service-Tally Lake Ranger District - Expressed concern about subsurface sewage disposal because of clay layers and potential high ground water. Also, as mentioned above, indicated the Forest Service's intent to log the nearby area to the west. Also indicated concern about the fish and game resources in the area, and suggested in-depth studies on the stream bed channelization which the owners did last summer. Concluded by suggesting that the project is not environmentally sound and that impact on adjacent lands has not been evaluated.

In response to the sewage concern, as mentioned, the land does apparently meet this Department's regulations. However, as the Environmental Quality Act requires 30 days following the distribution of this final statement, it will be possible to re-examine the site in June of this very wet year to check the water situation again. Laterally, the development is far from the surface waters.

The proposed logging activities were mentioned above. It does not appear that such activities are very compatible with trailer court development. Yet, there are no laws or regulations to prohibit such apparent conflicts, and this Department's authority is expressly limited to water supply, sewage disposal, and other rules and regulations regarding trailer court operations. It is apparent that much of the land to the west could be utilized for logging, and the developer should realize that the noise, dust and traffic simply will have to be tolerated if the trailer court is developed.

The fish and game resources were briefly mentioned above. The stream channelization, which took place last summer, is a project totally separate from the trailer court development, and is a completed fact. While there is little question that the activity could only damage the fishery in Logan and Good Creeks; no agency has approval or disapproval authority over the existing situation. Should the owners decide to channelize again, it would be necessary to do so without muddying the water in violation of State water quality standards. This is essentially impossible with heavy equipment operating in the stream channel.

Regarding impact on adjacent lands, and environmental soundness of the project, these are both very difficult items to evaluate. Comments have been made in both catagories. Again, these are areas which should be discussed to some extent in an impact statement, but are areas over which this Department has no authority or control.

Environmental Quality Council - Suggested that alternatives for agricultural use, timber use, or preservation are not valid alternatives as they are not within this Department's jurisdiction. The writer agrees and these three alternatives are here revised to two alternatives, to simply approve, or not to approve the project.

Montana Dept. Natural Resources & Conservation - A question was raised regarding the access road, which, according to the USGS map (see attached) runs, in part, through State lands. See copy of the letter for details. The letter also raises questions with regard to impact on schools, and fire protection. These three items are certainly valid questions, but being outside of this Department's authority, they are referred to the Flathead County Area-wide Planning Organization and the Board of County Commissioners, and those entities have the responsibility for reviewing roads, schools, and fire protection in subdivisions prior to approval or acceptance for filing.

Another question was raised regarding garbage handling. Under existing trailer court regulations, it is the responsibility of the court operator to provide garbage cans and to haul or contract to haul the contents to approved facilities. In this case, the area is served by the Flathead County Landfill via the satellite "green box" stations. If the green boxes prove inadequate, it would be the responsibility of the Landfill board to provide additional containers. At no time would random garbage disposal from the trailer court be tolerated, and such activities would certainly jeopardize the court license.

Another comment was raised concerning the use of adjoinging State lands for cattle grazing during the summer months, and the possible conflict this could have with the trailer court. As the trailer court would be located on private land, one would assume that the leasee - owner of the cattle would be responsible for keeping his cattle on the ground which he is leasing. However, Mrs. Ora Halvorsen, State representative was contacted in this regard, and she stated that under the open range concept there is no clear cut answer to fencing responsibility. The trailer court owner may in fact find it necessary to erect any fences necessary to keep cattle from the trailer court area. The recently passed fencing law applies only to primary State highways.

The response concluded by suggesting that more local groups and citizens be sent copies of the impact statements to obtain their input and keep them informed. Informing the public is one of the most difficult parts of an environmental impact analysis. This Department maintains lists of agencies and organizations interested in subdivision, and at present some 52 entities are on the Northwestern Montana list. In spite of large mailing lists, fewer than three or four responses are normally received. Also the State Environmental Quality Council, which oversees the impact statements, has indicated in the past the State agencies are not responsible for distributing statements to individual parties. This Department has routinely sent impact statements to all organizations expressing interest, however. At present, no groups or organizations in the Olney area have expressed interest in being placed on the list. The general public is kept somewhat aware of developments by newspaper coverage of actions taken by the Area-wide Planning Board regarding subdivisions.

Flathead County Health Dept. - (See attached letter). The County Sanitarian's office made several comments on the proposed site, relative to soils, topography, grazing, and short term-long term uses of the land. The general conclusions of the letter were that the area is suitable for a trailer court from a health standpoint, but that the development would be expected to degrade the environment. More specifically, the letter recommended that the sewage drainfield systems be designed in accordance with the more limiting soil in the development, rather than according to individual percolation tests. Revised drainfield sizes were suggested in this regard, and are included with the attached letter.

It is here noted that the sanitarian's recommended septic tank sizes are valid according to the State trailer court regulations. Revised plans have combined spaces 1-5 into a single sewage system, so the County list should be corrected to show a single 2000 gallon tank for those five spaces. Otherwise, this Department concurs with the septic tank size revisions.

Regarding the drainfield sizes, this Department concurs that the more limiting percolation results (say 20 minutes/inch) should be applied to those proposed drainfields which are not located near percolation test holes. However, it is felt that those drainfields located near percolation holes should use the percolation rates measured there. In this regard, this office feels that the following design parameters are adequate:

SPACES SERVED	PERCOLATION RATE TO BE USED (MIN/IN)	APPLICABLE PERCOLATION TEST (S) #	DESIGN SEWAGE FLOW GALLONS/DAY (P.H.S.)	DESIGN ABSORPTION RATE gpd/ft^2	DRAINFIELD AREA REQUIRED (ft^2)
1 - 5	12	1	1250	1.5	833
6 - 10	12	1	1250	1.5	833
11 - 12	Estimate 7	None	500	1.9	263
13 - 18	2	2	1500	3.5	429
19 - 20	23	3	500	1.1	455
21 - 24,) 38 - 40)	2	4	1750	3.5	500*
25 - 29	Estimate 20	None	1250	1.2	1041
30 - 32,41	Estimate 20	None	1000	1.2	833
33 - 37	Estimate 20	None	1250	1.2	1041

* Drainfield relocated on plans to vicinity of percolation hole #4

These sizes are generally more conservative than those shown on the plans, but less conservative than those listed by the County Sanitarian's Office. The sanitarian has verbally indicated that his office will accept the above design figures based on nearby percolation tests, in lieu of the more conservative figures listed in his letter.

PROBABLE IMPACT ON THE ENVIRONMENT

Full development of the proposed trailer court will result in the influx of forty-one families into a presently undeveloped area. The impacts will be those normally associated with increased population. Access by means of dirt roads could result in considerable dust. With 25 new families in the area, the quality of hunting and fishing in this remote area would be expected to suffer.

SHORT TERM VS. LONG TERM USES OF THE ENVIRONMENT

Few permanent structures are involved in the development of a trailer court. However, the approval and licensing of a trailer court entitles the owners to an unlimited time duration for operation, subject only to annual license renewal. As such, approval of this trailer court constitutes a long-term commitment of the land politically if not physically. Other uses of the land, such as grazing, farming, or timber production would be lost.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Except for a political commitment of 7.5 acres of land, no commitment of resources is envisioned in this project.

RECOMMENDATIONS

As the plans for the proposed Outback Mobile Home Settlement meet all State Department of Health & Environmental Sciences regulations, it is recommended that the subdivision be approved and the trailer court be licensed. Any departure from plans during construction, or any operations not in accord with State trailer court regulations, would be just cause for revocation of the license.

SOURCES OF INFORMATION

A personal inspection of the area, plus information provided by Dean K. Marquardt, engineer and surveyor for the project, plus public input to the draft environmental impact statement were used in the preparation of this statement.

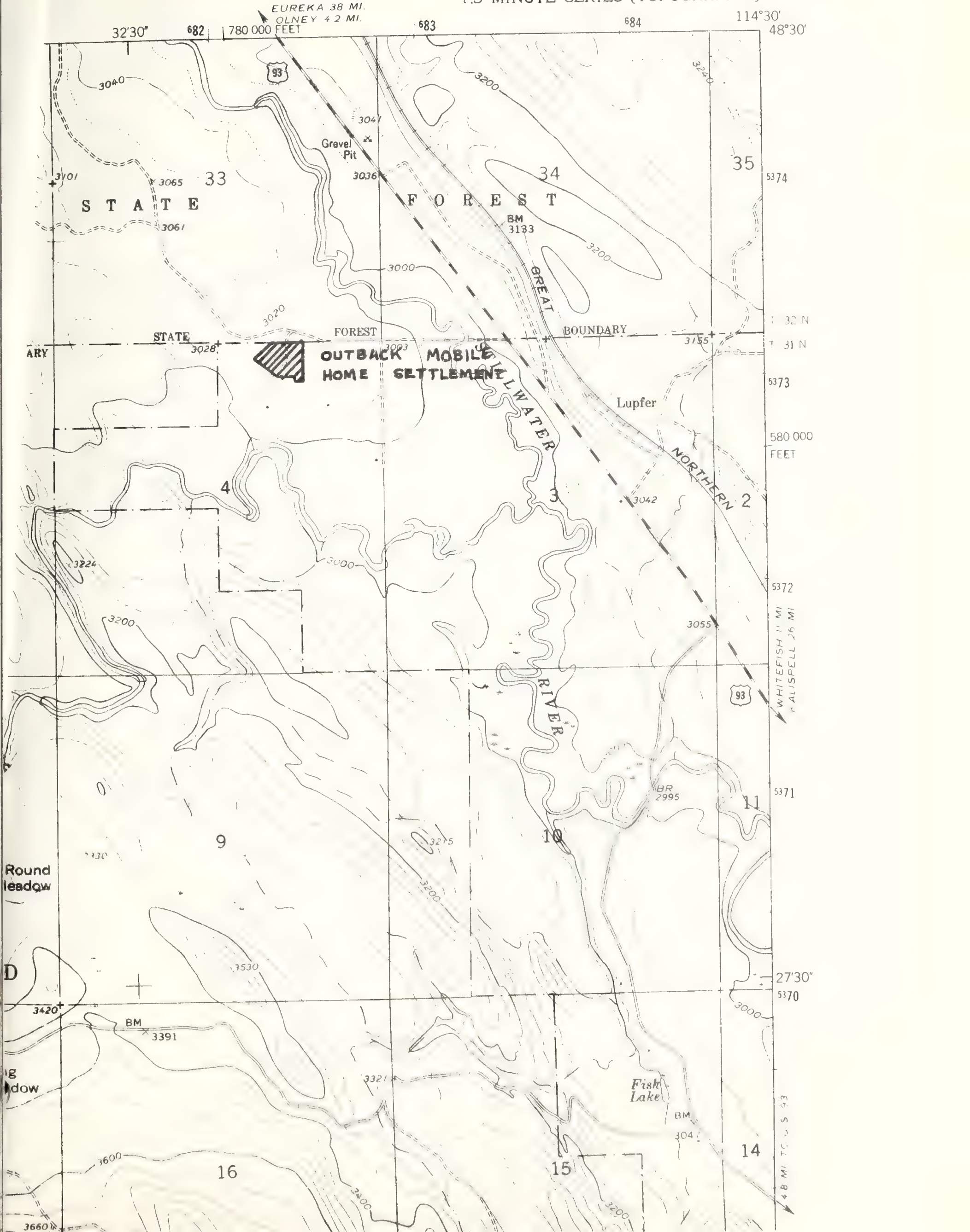
THIS STATEMENT HAS BEEN PREPARED BY

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes seven years of work as a sanitary engineer for the States of Montana and Washington.

Copies of the Final Environmental Impact Statement for Outback Mobile Home Settlement sent to the following:

Mr. Ronald Brist, Box 114 Olney
Montana Environmental Quality Council Box 215 Capitol Station Helena
Montana Fish & Game Department Mitchell Bldg. Attn: Jim Posewitz, Helena
Montana State Forestry Attn: Jim Gragg, Highway 93 North Kalispell
Montana State Dept. of Health & Env. Sciences Attn Art Clarkson, Helena
Montana State Dept., Intergovernmental Relations Div. of Planning & Economic Development Capitol Station, Helena
Montana State Library 930 E. Lyndale, Helena
Mr. Ben Wake, Administrator, Environmental Sciences Div, Helena
USDA Forest Service, Flathead Nat'l Forest, Forest Supervisor, 290 N. Main Kalispell
Board of County Commissioners, Flathead Co. Courthouse, Kalispell
Flathead Area-wide Planning Organization, 3 Ford Bldg, Kalispell
B. C. McIntyre, M.D. Flathead County Health Officer Box 427 Whitefish
Mr. Les Espeland, Flathead Co. Sanitarian Box 919 Kalispell
Mr. Wayne Herman, President Flathead Wildlife, Inc. Box 4 Kalispell
Mr. John Cochrane, Flathead Lakers, Inc. Box 447 Big Arm
Dr. Lawrence Sonstelie, President FVCC Ecology Club, Kalispell
Student Environmental Research Center Room 212 Venture Center, Missoula
Mr. Bob Muth, Montana Wilderness Assoc. Flathead Chapter, Rt.4 Kalispell
Dr. John Tibbs, Director, U of M Biological Station, Bigfork, 59911
Trout Unlimited % Mr. Gary Hanson, 136 1st Ave. W. Kalispell
Flathead Tomorrow, Box 173 Bigfork Ms. Kathy Thompson
Mr. Dean Marquardt, 809 1st Ave. E. Kalispell
Ms. Beverly Boe 2 6th Ave. W. Kalispell

TALLY LAKE QUADRANGLE
MONTANA-FLATHEAD CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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59901

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MISSOULA, MONTANA 59801

FORESTRY DIVISION
GARETH C. MOON
ADMINISTRATOR

March 5, 1974

016.8 - Outback Mobile
Home Settlement

Mr. David Nunallee
Public Health Engineer
Montana Department of Health and Environmental Sciences
Glacier Block
Kalispell, Montana, 59901

Dear Mr. Nunallee:

Thank you for the opportunity to respond to the Draft Environmental Impact Statement for "Outback Mobile Home Settlement", proposed trailer court near Olney, Montana. Mr. Tom Vars, Unit Forester, Stillwater State Forest, and myself have reviewed the statement and offer the following comments:

1) Access to the settlement is described as running along the section line between Sections 3 and 34, then 4 and 33. The attached map shows access as described but then turning northward onto State land in Section 33, and lastly, southward to the settlement site. Has this been established as a county road, or is it necessary to obtain right-of-way? Has any provisions been made for improvement of the road with Section 33? Portions of the existing road have little or no drainage and surfacing and would certainly cause difficulties until improved to handle the increased load. The State will continue to use the access road for forest management activities. The uses are compatable, but increased useage will necessitate road improvement work.
2) The school district affect is not developed in the statement. If the Olney school would be utilized, I suspect considerable impact on the small, rural facility. Was the school board notified?
3) Is there any provisions for structural fire protection? I believe the area is outside the Olney Volunteer fire district. The township line between Section 33 and 4 is the boundary between State of Montana and U. S. Forest Service forest fire protection districts; however, they are not responsible for structural fires.
4) Are there any provisions toward the need of increased garbage deposits (green boxes) or hauling facilities. The State forest lands have been used frequently as unauthorized dumping sites.

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5) Portions of adjoining State lands are utilized for cattle grazing during the summer months. Undoubtedly, additional fencing and cattle guards may become necessary around the settlement.

6) Although your EIS is well done, you may want to improve its effectiveness by mailing copies to more local citizens and groups such as in Olney and Whitefish.

If the Montana Division of Forestry can be of any further assistance in consideration of the proposal, please feel free to contact me at any time.

Sincerely,

James F. Gragg, Supervisor NW Area

JFGrg

cc: Vars
    Cal file
    016.8

RECEIVED
APR 24 1974
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
KALISPELL REGIONAL OFFICE

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Tally Lake Ranger District
Whitefish, Montana 59937

8400
April 10, 1974

Mr. David Nunnallee
Public Health Engineer
Dept. of Health and Environmental Sciences
Kalispell, Montana 59901

Dear Mr. Nunnallee:

In reference to your Draft Environmental Impact Statement for the Outback Mobile Home Settlement, the following are our comments:

Sewage disposal appears to be a critical segment of the proposed development. Soil types within the area, from all indications, are good types for good dispersion of waste materials. Layering of gravels and clays could have possibilities of causing liquids to flow laterally and reach nearby streams.

Ground water depths vary throughout the year, especially during spring run-off periods. Both Good Creek and Stillwater River drainages are within the immediate area of the development and could influence the ground water depth, depending upon the year.

The area adjacent to the development, approximately one-fourth of a mile west, is National Forest land. Present plans are to harvest potstick sales from this area this spring and manage the land for timber products. Last fall this area was inventoried, and from the habitat type encountered, is considered highly productive. Depending upon the degree of management, this area could be more productive than at the present.

The surrounding environment has a greater value than indicated in the impact statement. Wildlife and fisheries inputs should be further investigated to determine populations, needs, and future demands.

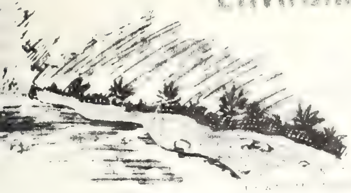
Stream-bed channelization should be examined. It was only mentioned. This could have some impacts which need in-depth studies.

On the basis of available information provided within the Environmental Impact Report, I cannot support the proposed project. The analysis does not evaluate impacts on adjacent lands. I do not feel the proposed project is environmentally sound.

Sincerely,

James D. Kline

JAMES D. KLINE
Tally Lake District Ranger



STATE OF MONTANA
Environmental Quality Council

Thomas J. Lynaugh

March 25, 1974

David Nunnallee, P.E.
Department of Health and Environmental Sciences
Box 1031
Kalispell, Montana 59901

Dear Dave:

We have reviewed your draft EIS for the Outback Mobile Home Settlement near Olney, Montana.

May we suggest that alternatives 2, 3 and 4 are unrealistic in that the Department of Health is not a land planning agency and does not have the prerogative to determine specific land uses. More appropriate alternatives might be to remove or not to remove sanitary restrictions from the property.

On the other hand, pointing out other possible beneficial uses might serve to alert the owner and other agencies, such as Fish and Game, to the potential value of the property for nonresidential purposes. This may be more desirable than the more restricted viewpoint.

I would appreciate having your thoughts on the matter of EIS alternatives in general.

Thanks for your efforts toward compliance with the Montana Environmental Policy Act.

Sincerely Yours,

Loren

LOREN L. BAHLS, Ph.D.
Staff Ecologist

RECEIVED
MAR 28 1974
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
KALISPELL REGIONAL OFFICE

LLB/kk

FLATHEAD COUNTY HEALTH DEPARTMENT

Box 919 Kalispell, Montana **Phone 756-9481**

LES ESPELAND R.S.
COUNTY SANITARIAN

A.E. SCHOENHUTH R.S.
ASST. COUNTY SANITARIAN

BRUCE C. McINTYRE M.D.
COUNTY HEALTH OFFICER

MARION FINLEY R.N.
COUNTY NURSE

THELMA STROM R.N.
ASST. COUNTY NURSE

March 7, 1974

RECEIVED
MAR 11 1974
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
KALISPELL REGIONAL OFFICE

David Nunnallee, P.E.
Department of Health
P.O. Box 1031
Kalispell, Mt. 59901

Subject: OUTBACK MOBILE HOME SETTLEMENT

Dear Sir:

I visited the proposed subdivision October 11, 1973, making notes during this time. I also spoke with Mrs. Robert Brist for information.

Soils and Topography

As indicated in the impact statement, the soil consistency varies from a gravelly clayey interspersed with rock and sand to a sandy loam. Test holes and the well logue indicate a thick subsurface layer of clay. The static water level was recorded at 19 feet in the well near the Brist home. This may be a relative indication of the watertable.

An old meander channel was evident through the proposed site. It is my opinion that this is merely a remnant of the once prevalent beaver's stream deversification. Since the soils of the area are rather impermeable, it is quite likely that beaver damning upstream caused the meandering long ago.

Current Agricultural Use

The land appeared to be heavily overgrazed durring my visit. Comments from the local ranching community indicated this may have been caused by grazing of the land during the wrong seasons. Grazing durring the wet months allows the upheaval and dislodging of root structures by the foraging animals. The moderately grazed adjacent lands did not exhibit the same barren appearance.

Short Term vs. Long Term Uses

The labor force of the area is chiefly engaged in seasonal logging. Many of these people live in trailer homes, a good number of which have improper water and sewage facilities. The long term impact to the surrounding environment can only be termed detrimental. The immediate effect to the environments of the families using the development can only be termed beneficial

Septic System Design

The septic system design as presented this office is not consistent with good engineering practice nor state or county regulations. Please find attached a table indicating the proper sizing for both septic tank and drainfield size.

Conclusion

The planning and location of the development from a public health view point is quite good. The physical characteristics of soils, topography, watertable and water supply are beneficial to the development in many respects. The ethical question here is: Natural environmental degredation vs. human life style.

Respectfully submitted,

A.E. Schoenhuth, R.S.
Asst. County Sanitarian

cc. Dr B.C. McIntyre, M.D.
County Commisioners

TABLE OF SEPTIC SYSTEM

CORRECTIONS FOR

OUTBACK MOBILE HOME SETTLEMENT

SPACE NUMBER	CORRECT SEPTIC TANK SIZE [1]	CORRECT TILE LINE LENGTH [2]
1-3	1250 gal.	4 @ 85'
4&5	1000	OK
6-10	2000	6 @ 95'
11&12	1000	3 @ 75'
13-18	2250	8 @ 85'
19-20	1000	3 @ 75'
21-24&38-40	2500	8 @ 100'
25-29	2000	6 @ 95'
30-32&41	1500	OK
33-37	2000	OK

[1] From regulation 54.500 (Trailer Court Regulations)

[2] From the 'Manual of Septic tank Practice' U.S. Dept. Of H.E.W. using an application rate of 1.1 gallons of sewage per square foot per day.

628.168
H2e

STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

September 25, 1974

SEP 27 1974

Honorable Thomas Judge, Governor, State of Montana, Helena
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Morrison-Maierle, Inc., 910 Helena Avenue, Bozeman
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
Department of Highways, Helena
Ronald Schleyer, Lee State Bureau, 317 Allen, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North Bozeman Ave., Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13 Ave., Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard C. Ritter, Box 1170, Bozeman
James Posewitz, Department of Fish and Game, Helena
Gallatin National Forest, Federal Building, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center,
University of Montana, Missoula
Montana State Library, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Ed Mohler, The Gallatin County Tribune, 201 Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, Larry Uman, University of Montana, Missoula
Gallatin Canyon Study Team, Montana State University, Bozeman
Consumer Advocate, Governor's Office, Helena
Rick Applegate, Box 931, Bozeman
Joe Sabol, Attorney, 27 North Tracy, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman
James Goetz, Bridger Canyon, Bozeman
Raymond Hurley, Joe Brooks Chapter, Trout Unlimited, Box 271, Livingston
Dorothy Bradley, Box 931, Bozeman
Keith M. Thompson, U.S. Forest Service, Federal Building, Missoula
Mike Baker, Box 843, Big Sky
Karst Guest Ranch, Box 1055, Bozeman

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

Environmental Information Center, Box 12, Helena
Paul T. Richards, 902 North Park, Helena
Dan Smith, Citizens Alert for Guided Growth, 812 South Eighth, Bozeman
Earl Best, Bridger Canyon Planning & Zoning Commission, Courthouse, Bozeman
Gallatin County Tribune, 201 E. Mendenhall, Bozeman
Leroy W. Spain, Bozeman
Donald A. Corcoran, 1415 W. Koch, Bozeman

Ladies and Gentlemen:

The attached document has been issued as an addendum to the draft and final environmental impact statements for the proposed Karst Village No. 1 Subdivision in Gallatin County. As noted on the attached revised plot of the proposed subdivision, the name has been changed to Parkview West.

This addendum has been published to inform the concerned public and governmental agencies of information that has become available since publication of a supplement to the final environmental impact statement on February 20, 1974.

All comments regarding this addendum should be received by this department within 15 days from the date on this letter.

Sincerely,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

cc: Ben Wake

September 20, 1974

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

Addendum to the Final Environmental Impact Statement for Parkview West Subdivision

Parkview West is located in Section 1, Township 6 South, Range 4 East. The area contained within the boundaries of the proposed subdivision is a portion of a previously proposed subdivision - Karst Village No. 1. The present plot embraces 64.14 acres containing 37 individual single family lots, each with an area in excess of one-acre which is a decrease of 32 lots from the original plat.

There is a total of 5.809 acres of park area within the development. This area being set aside for the use of the residents within the development and the public at large. The park area, as can be seen on the plat, is mainly adjacent and contiguous to the West Gallatin River so as to provide an area easily accessible and of maximum use to those who choose to use it. In accordance with Section 11-3864(1), Revised Codes of Montana, one-ninth (1/9) of the combined area of the lots in the development is required to be set aside for park. One-ninth (1/9) of the combined lot area in the development is 5.311 acres. An additional one-half acre of park land over and above the present existing legal requirement has been set aside.

In addition to the 5.809 acres which have been reserved for park dedication, two areas, one containing 0.314 acres and the other containing 0.625 acres, have been reserved as open space. The two areas designated as open space are not numbered as lots, and therefore are not subject to removal of any sanitary restrictions.

The domestic water supply for the individual lots within the development will be obtained by individual water wells. The developers have previously drilled three test wells within the development. As noted on the attached plat the wells are located on Lots 4, 34 and the 0.625-acre open space. The attached well logs demonstrate that the wells were drilled to a depth of 50 feet on Lot 34, 60 feet on Lot 4 and 140 feet on the open space with production after four hours of pumping of 40,10 and 5 gallons per minute respectively.

According to MAC 16-2.14(10)-S14340, individual water supply systems shall be constructed to provide an adequate quantity of water which is free of and protected from bacteriological contamination and is of a satisfactory chemical quality so as to cause no unfavorable physiological effects on those consuming the water. The sanitary quality of the water will be in accordance with the U. S. Public Health Service Drinking Water Standards. The chemical quality will be as set forth in criteria established for the review of chemical analyses of water by the department. From the attached analyses of water samples from wells in the area of Parkview West Subdivision it is evident that well water in this area meets all the U. S. Public Health Service Drinking Water Standards.

In addition MAC 16-2.14(10)-S14340 states that:

(a) The water system shall provide a sustained yield of at least five gallons per minute per dwelling. A test of at least four hours' duration shall be conducted to determine yield and maximum drawdown.

(b) The water supply source shall be so located as to be adequately protected against contamination.

In order to adequately protect a water supply against contamination the U. S. Public Health Service has recommended the following minimum distance requirements·

	TO			
FROM	Septic Tank	Absorption Field	Seepage Pit	Absorption Bed
Well	50	100	100	100

It appears that all the above criteria can be met on Parkview West Subdivision except possibly on Lots 6,7 and 8, where a sustained yield of five (5) gallons per minute may be difficult. Therefore any future Department of Health and Environmental Science approval of this subdivision would exclude these lots until adequate evidence is submitted that a sustained yield of domestic water can be supplied at a rate of five (5) gallons per minute on these lots.

In addition in order to provide additional protection against contamination of the water supply the Water Quality Bureau will require a minimum well depth of fifty (50) feet as a condition for any subdivision plat approval even though the department only requires a 25 foot depth as a minimum standard.

The amount of water available in the well on Lot 34 is sufficient to supply the domestic water needs for several lots. The developers propose to use this well to supply the water needs for the residences of Lots 30 through 37 thus eliminating the necessity for further well drilling in the area.

A public water system is described as one that serves ten (10) residences or twenty-five (25) persons and requires a licensed operator. The proposal to serve the Lots 30 through 37 with a central water system does not constitute a public water system. However, according to MAC 16-2.14(10)-S14340, Section (4) (d) (ii) details of construction of a water system must be submitted. Until this regulation is complied with, any proposed subdivision plat approval would be based upon individual wells only.

Solid waste disposal within the proposed development will be handled by commercial contract with a local trash removal firm in the City of Bozeman. Solid waste removal will of necessity, and by covenant, be under strict supervision. No burning or burying of trash will be allowed within the development. All residents of the development will be required to place all solid waste within a tightly closed steel container and to be kept there subject to its removal by the commercial contract hauler.

Test hole 31 B had water at 96 inches. This hole is located near the eastern end of the lot. Any septic tank drainfield would be located on the western end of the lot where hole 31 A was dry at ten feet. Test hole 33 had groundwater at 78 inches, but this hole is located along the park boundary. Test holes 36 and 37 had groundwater at 90 inches, but are located near the park boundary several hundred feet from any proposed drainfield site.

The question of potential pollution to the West Gallatin River had been raised. Nutrient enrichment of this "Blue Ribbon Trout Stream" is of concern to many. Nitrogen and phosphorus are the usual elements that can accelerate the eutrophication process. The worst possible situation would be if all thirty-seven lots were developed and occupied the year around by average families and their sewage would be discharged directly into the river.

In this hypothetical situation the 37 lots would be occupied by an average of 3.2 persons resulting in a population of 118 people producing an average of 23,600 liters of sewage per day. With an average nitrogen content of 20 mg per liter and an average of 10 mg per liter phosphorus, the daily production of sewage would contain 472 grams of nitrogen and 236 grams of phosphorus.

The lowest river flow recorded at the U.S.G.S. gauging station downstream from Parkview West Subdivision was 117 cfs. If all the nitrogen and phosphorus from the sewage produced on the subdivision were discharged into the river at low flow, the nitrogen concentration due to this discharge would be 0.0018 mg/l and the phosphorus content 0.0009 mg/l. This compares to an average of 0.038 mg/l phosphorus and 0.007 mg/l nitorgen now in the river. These are far below the levels that cause accelerated eutrophication.

This ultimate absurdity could never become a reality for the soil system has the capacity to renovate sewage to a high degree as evidenced by results of federal and state research.

Such studies have been conducted by the Cincinnati Water Research Laboratory of the Federal Water Pollution Control Administration (now E.P.A.). They have demonstrated this high degree of renovation of sewage in the soil system. Using sewage effluent containing 24.1 mg/l total nitrogen and 8.5 mg/l total phosphorus and filtering this through five feet of bare silt loam and five feet of silt loam with a reed canary grass the following renovation was achieved:

	Average COD Removal %	Average Amm-N Removal %	Total Nitrogen Removal %	Total Phosphorus Removal %
Bare Silt Loam	91	96	48	98
Reed Canary Grass	84	96	85	99

Loaded at the rate of 1 gal/sq. ft./day

As can be expected phosphorus removal is very high as the soil system has a tremendous capacity to "fix" or retain phosphorus. Renovation of sewage effluent with respect to total nitrogen is less under conditions of bare soil than under a grass cover. This can be expected for several reasons.

As most inorganic nitrogen in sewage is in the ammonium form, it is not directly available for utilization by plants. Some of this ammonia-N becomes involved in the cation exchange complex in the soil and is retained. Within a few feet of entering the soil system, much of [illegible] nitrogen is converted to the soluble nitrate nitrogen and is available for plant use. Thus, the vegetative cover reduces leaching of effluent in the soil because water and nutrients are taken up by the plants. Of further benefit is the capability of grass to increase denitrification. Grass roots produce oxygen acceptors that reduce the oxygen in the soil solution near the roots. Rhizosphere organisms utilize the oxygen in nitrates during breakdown of root excretions with resultant production and loss of nitrogen gas.

Similar results were obtained in studies at the Pennsylvania State University where sewage effluent was spray irrigated on hardwood plots. The table on the next page shows the average concentration of constituents in percolated water samples at various soil depths in these studies.

As can be seen, the sewage effluent has been renovated to such an extent the percolating waters contain 2.3 milligrams per liter total nitrogen and 0.05 milligrams per liter phosphorus at 48 inches.

In terms of Parkview West subdivision, this means that any percolating waters that could reach groundwater would have a high degree of treatment. The septic tank drainfields would be installed at a depth of one foot below the natural ground surface in order to utilize as much of the soil system for treatment as possible. This further maximizes evapotranspiration of soil moisture (estimated at about 26 inches per year at Parkview West) and reduces the amount of water available for percolation down to groundwater.

It is recognized that a vegetative cover does not contribute significantly to evapotranspiration during the winter months or utilizes water and nutrients during the dormant season. However, the soil system in the vicinity of the subsurface sewage disposal system does remain biologically active due to warm septic tank effluent entering the system. Thus, the treatment or renovation mechanisms in the soil system remain active.

In short, it is impossible to state that percolating waters that originated as septic tank effluent would never reach the groundwater. However, this water would have a high degree of treatment with respect to nutrient removal. As this state does not have standards set for groundwater quality, the U. S. Public Health Service drinking water standards are currently the basic criteria. As far as criteria are concerned, the recommended limit for nitrate (45 milligrams per liter) is probably of greatest concern. The evidence is that the groundwaters beneath Parkview West subdivision will continue to be better than these standards.

From the data submitted, the test well drilling and the groundwater observations made over the past three years, it appears that the proposed Parkview West subdivision is in compliance with Sections 69-5001 through 5005, R.C.M. 1947 and all rules and regulations made and promulgated pursuant thereto, except for Lots 1, 6, 7 and 8.

	pH	MBAS	NO_3-N	*Org-N	Cl	P	Na	K	Ca	Mg	Mn	B
					Concentration in mg/liter							
Effluent Quality	7.7	0.59	5.1	19.9	46.4	8.455	40.2	18.6	26.4	13.3	0.12	0.37
Soil Depth-inches												
6	7.4	0.29	8.8	10.4	46.3	6.077	41.0	13.7	26.1	13.4	0.09	0.29
12	7.4	0.20	6.3	5.7	55.6	2.821	39.5	12.9	18.3	12.6	0.07	0.27
24	7.1	0.09	3.2	1.5	66.9	0.063	54.6	6.6	10.6	6.8	0.34	0.27
36	7.1	0.11	4.4	1.2	77.3	0.050	53.2	5.3	9.5	9.5	0.36	0.28
48	7.4	0.12	0.9	1.4	53.1	0.050	54.9	3.2	7.1	6.2	0.04	0.12

* Includes NH_4-N

AVERAGE CONCENTRATION OF CONSTITUENTS IN THE PERCOLATE WATER SAMPLES COLLECTED FROM PAN LYSIMETERS LOCATED IN THE HARDWOOD PLOT WHICH RECEIVED SEVEN INCHES OF EFFLUENT PER WEEK DURING THE PERIOD OF APRIL 15 TO OCTOBER 14, 1968.

Pursuant to findings and facts as determined by law in the court of the Honorable Gordon R. Bennett, the consulting engineering firm of Morrison-Maierle, Inc. was retained by the developers to perform the testing necessary to comply with all the laws and regulations that were in effect on August 1, 1974. The subdivision was resurveyed creating 37 lots ranging in size from 1.022-acres to 2.377-acres. This conforms to the minimum lots size requirements as set forth in MAC 16-2.14(10)-S14340 Section (4) (2) which states:

> *When individual water supply and sewage systems are to be provided to serve the property, the minimum size will be determined by soil porosity and groundwater depth, the amount of water usage anticipated, and will be not less than one acre in usable area but may be more if so indicated by the data submitted. When either an individual water system or an individual sewage system is to be provided to serve the property and the other service is to be provided by a public water or sewer system, the lot size will be determined by the physical characteristics listed above and will be not less than 20,000 square feet of usable area but may be more if so indicated by applicable data and the rules pertaining thereto. Usable area of the lots which is suitable for construction purposes does not include land which lies within the 100-year flood plain, is under water at certain times of the year or has extensive rock outcroppings.*

As can be seen the area suitable for construction purposes meets or exceeds the minimum required.

The results of percolation tests conducted by an engineer from Morrison-Maierle, Inc. and the description of the soil logs are attached and keyed to the accompanying plat. Percolation test results were within the range deemed satisfactory for subsurface sewage disposal. Rates slower than 60 minutes per inch indicate the soil will not accept septic tank effluent rapidly enough for proper disposal. Rates faster than 5 minutes per inch indicate soil conditions that may not afford maximum treatment to septic tank effluent. Percolation rates at Parkview West Subdivision ranged from 6 to 60 minutes per inch.

Attached is a compilation of groundwater observations that have been made at the proposed subdivision from May 1971 to August 1974. The observation holes are keyed to the attached plat. As can be seen water was observed in nine (9) of the holes. However, the location of these holes and the depth to groundwater should be noted. Parkview Plat Test No. I is located in the park. Although Parkview Plat Test No. II is located at the extreme eastern edge of Lot 20 the portion of the lot west of the hole is on a terrace five or six feet higher than the elevation of the test hole. The observation hole on Lot I indicates that the groundwater conditions on this lot render it unsatisfactory for on-site sewage disposal. Therefore, this lot would be excluded from any proposed Certificate of Subdivision Plat Approval.

The test hole on Lot 26 at location A indicates groundwater at 78". This hole is at the base of the hill and the groundwater regieme is affected by upslope influences rather than from the river. Although this depth to groundwater more than allows for the required (U. S. Public Health Service and MAC 16-2.14(10)-S14340) four foot separation of the groundwater and the bottom of a drainfield, this location is not needed as a drainfield site on Lot 26. The test hole at site B on Lot 26 was dry at ten feet.

Proposed Action

Fifteen days after issuance of this addendum, the department will petition the court of the Honorable Gordon R. Bennett to vacate the injunction prohibiting the Department of Health and Environmental Sciences from approving the subdivision plat and thereby removing the sanitary restrictions from all lots except Lot 1, 6, 7 and 8, and water supply should be by individual wells only.

In the judgment issued by the Honorable Gordon R. Bennett in the case of the Montana Wilderness Association and Trout Unlimited, Plaintiffs, verses the Board of Health and Environmental Sciences of the state of Montana; the Department of Health and Environmental Sciences of the state of Montana; the Board of County Commissioners of Gallatin County, Defendants, and Donald A. Corcoran and LeRoy W. Spain, interveners, the court found that in certain respects, the Department of Health and Environmental Sciences was lax with respect to laws and regulations as pertains to the Montana Subdivision and Platting Act. The department feels that:

1. The question of park dedication has been resolved by a new plat.
2. The requirements of current regulations MAC 16-2.14(10)-S14340 (4)(a) and (6)(d)(i)(iv) and current laws Section 69-5001 et. seq., R.C.M. 1947, have been met.
3. Sections 69-6504, 69-4804, 69-4806(1), 69-4808.2(4), 69-4901, 69-4903, R.C.M. 1947 requirements have been met to the fullest extent possible.

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ATER QUALITY BUREAU-MONT STATE HEALTH DEPT.          HELENA, MONTANA  59601
                              WATER QUALITY ANALYSIS
                                                                               ??
           STATE  MONTANA                                 COUNTY  GALLATIN
ATITUDE-LONGITUDE                                       LOCATION  06S 04E 0(----)
      SAMPLE TYPE  WELL                                  LAB NO.  73 2191
GEOLOGICAL SOURCE                          SAMPLE OR BOTTLE NO.        1
    DRAINAGE BASIN                      AGENCY AND STATION CODE  WQB
      DATE SAMPLED  12-01-73            DEPTH WATER ENTERS WELL     16 FT
      TIME SAMPLED  1205               SWL ABOVE(+) OR BELOW GS
     DATE ANALYZED  12-17-73           ALTITUDE OF SAMPLE POINT
   SAMPLE HANDLING  1100                        WATER FLOW RATE   ?
    METHOD SAMPLED  BOTTLE                    FLOW MEAS METHOD
ANITARY CONDITION                       PRINCIPAL USE OF WATER  DOMESTIC

          PROJECT  PRIVATE WATER SUPPLY - NITRATE LEVEL          KEPPNER
          REMARKS  KARST RANCH GALLATIN GATEWAY MONTANA

    PARAMETERS REPORTED IN MILLIGRAMS PER LITER EXCEPT AS INDICATED
                   MG/L      MEQ/L                                  MG/L       MEQ/L
 CALCIUM  (CA)      1.2        0.060  BICARBONATE(HCO3)        183.         3.005
AGNESIUM  (MG)      0.4        0.032    CARBONATE  (CO3)         0.          0.0
  SODIUM  (NA)     98.         4.263    HYDROXIDE   (OH)         0.          0.000
OTASSIUM   (K)                           CHLORIDE   (CL)         1.4         0.039
OT. IRON  (FE)                            SULFATE  (SO4)        54.          1.124
ANGANESE  (MN)                            NITRATE  (NO3)         2.0         0.032
ALUMINUM  (AL)                           FLUORIDE    (F)
SILICA (SIO2)                           PHOSPHATE  (PO4)
                              ------                                        ------
           TOTAL CATIONS      4.355                      TOTAL ANIONS       4.201
         STANDARD DEVIATION OF CATION-ANION BALANCE -0.89 SIGMA

              LABORATORY PH       7.20  CARBONATE HARDNESS AS CACO3        5
          FIELD TEMPERATURE       1.1 C NON-CARB. HARDNESS AS CACO3        0
ALCULATED DISSOLVED SOLIDS      340.4          TOTAL HARDNESS AS CACO3     5
EVAPORATED SOLIDS AT 105 C               TOTAL ALKALINITY AS CACO3   150
   SPECIFIC CONDUCTANCE IN               LANGLIER SATURATION INDEX
       MICROMHOS/CM AT 25 C     435.0          RYSNAR STABILITY INDEX
   SODIUM ADSORPTION RATIO       19.9           TECH. CORROSION INDEX

                                 ADDITIONAL PARAMETERS
AB.TURBIDITY (JTU)      <.9




OTE. PARAMETERS ARE TOTAL DISSOLVED UNLESS LABELED TR-TOTAL RECOVERABLE
  DILUTE SPECIFIC CONDUCTANCE                      PERCENT REACTANCE VALUES
EAS DSC       0.   CALC DSC     433.     CA   MG   NA   K    CL   SO4  HCO3  CO3  NO3
    ERROR DSC   0.0                      1    1    98   0    1    27   72    0    1
NALYST  KK                                        PROCESSING PROGRAM 72(REV3)
NOTE. IN CORRESPONDENCE RELATED TO THIS ANALYSIS REFER TO NUMBER  73 2191
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ER QUALITY BUREAU-MONT STATE HEALTH DEPT.          HELENA, MONTANA  59601
                             WATER QUALITY ANALYSIS

          STATE  MONTANA                                  COUNTY  GALLATIN
TITUDE-LONGITUDE                                        LOCATION  06S 04E 12
     SAMPLE TYPE  WELL                                   LAB NO.  73 2194
EOLOGICAL SOURCE                            SAMPLE OR BOTTLE NO.       4
  DRAINAGE BASIN                      AGENCY AND STATION CODE  WQB
    DATE SAMPLED  12-01-73             DEPTH WATER ENTERS WELL     25 FT
    TIME SAMPLED  1435                SWL ABOVE(+) OR BELOW GS     1.0
   DATE ANALYZED  12-17-73            ALTITUDE OF SAMPLE POINT
 SAMPLE HANDLING  1100                         WATER FLOW RATE
  METHOD SAMPLED  BOTTLE                      FLOW MEAS METHOD
NITARY CONDITION                        PRINCIPAL USE OF WATER  DOMESTIC

         PROJECT  PRIVATE WATER SUPPLY - NITRATE LEVEL            -8-
         REMARKS  W J MCCRACKEN GALLATIN GATEWAY MONTANA

   PARAMETERS REPORTED IN MILLIGRAMS PER LITER EXCEPT AS INDICATED
                 MG/L      MEQ/L                               MG/L      MEQ/L
CALCIUM (CA)      38.         1.872  BICARBONATE(HCO3)      159.          2.599
GNESIUM (MG)       8.8        0.726    CARBONATE (CO3)        0.          0.0
 SODIUM (NA)      12.         0.522    HYDROXIDE  (OH)        0.          0.000
TASSIUM  (K)                            CHLORIDE  (CL)        1.1         0.031
T. IRON (FE)                             SULFATE (SO4)       29.          0.600
NGANESE (MN)                             NITRATE (NO3)         .76        0.012
LUMINUM (AL)                            FLUORIDE   (F)
ILICA (SIO2)                           PHOSPHATE (PO4)
                             ------                                      ------
          TOTAL CATIONS       3.120                    TOTAL ANIONS       3.242
        STANDARD DEVIATION OF CATION-ANION BALANCE  0.79 SIGMA

            LABORATORY PH       7.50  CARBONATE HARDNESS AS CACO3   130
        FIELD TEMPERATURE       0.4 C NON-CARB. HARDNESS AS CACO3     0
LCULATED DISSOLVED SOLIDS     247.6        TOTAL HARDNESS AS CACO3   130
VAPORATED SOLIDS AT 105 C                TOTAL ALKALINITY AS CACO3   130
  SPECIFIC CONDUCTANCE IN                LANGLIER SATURATION INDEX
     MICROMHOS/CM AT 25 C     310.0         RYSNAR STABILITY INDEX
  SODIUM ADSORPTION RATIO       0.5          TECH. CORROSION INDEX

                             ADDITIONAL PARAMETERS
B.TURBIDITY (JTU)      <.3




TE. PARAMETERS ARE TOTAL DISSOLVED UNLESS LABELED TR-TOTAL RECOVERABLE
 DILUTE SPECIFIC CONDUCTANCE                  PERCENT REACTANCE VALUES
AS DSC       0.    CALC DSC    318.     CA   MG   NA   K    CL   SO4 HCO3 CO3 NO3
   ERROR DSC   0.0                      60   23   17   0     1    18   80   0   0
ALYST  KK                                    PROCESSING PROGRAM 72(REV3)
OTE. IN CORRESPONDENCE RELATED TO THIS ANALYSIS REFER TO NUMBER  73 2194
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WATER QUALITY BUREAU-MONT STATE HEALTH DEPT.          HELENA, MONTANA  59601
                           WATER QUALITY ANALYSIS

           STATE  MONTANA                                  COUNTY  GALLATIN
LATITUDE-LONGITUDE                                       LOCATION  06S 04E 01----
       SAMPLE TYPE  WELL                                   LAB NO.  73 2192
  GEOLOGICAL SOURCE                          SAMPLE OR BOTTLE NO.       2
     DRAINAGE BASIN                      AGENCY AND STATION CODE  WQB
       DATE SAMPLED  12-01-73            DEPTH WATER ENTERS WELL    60 FT
       TIME SAMPLED  1230                SWL ABOVE(+) OR BELOW GS
     DATE ANALYZED  12-17-73           ALTITUDE OF SAMPLE POINT
    SAMPLE HANDLING  1100                        WATER FLOW RATE  ?
     METHOD SAMPLED  BOTTLE                     FLOW MEAS METHOD
SANITARY CONDITION                        PRINCIPAL USE OF WATER  DOMESTIC

          PROJECT  PRIVATE WATER SUPPLY - NITRATE LEVEL          KEPPNER
          REMARKS  JAMES R CRAMER GALLATIN GATEWAY MONTANA

    PARAMETERS REPORTED IN MILLIGRAMS PER LITER EXCEPT AS INDICATED
                    MG/L      MEQ/L                               MG/L      MEQ/L
  CALCIUM  (CA)     48.         2.412  BICARBONATE(HCO3)      213.          3.489
MAGNESIUM  (MG)     18.6        1.533    CARBONATE (CO3)        0.          0.0
   SODIUM  (NA)     12.         0.522    HYDROXIDE   (OH)       0.          0.000
POTASSIUM   (K)                           CHLORIDE   (CL)       1.0         0.028
TOT. IRON  (FE)                            SULFATE  (SO4)      45.          0.937
MANGANESE  (MN)                            NITRATE  (NO3)       1.5         0.024
 ALUMINUM  (AL)                           FLUORIDE    (F)
 SILICA  (SIO2)                          PHOSPHATE  (PO4)
                              ------                                       ------
          TOTAL CATIONS       4.467                   TOTAL ANIONS          4.478
         STANDARD DEVIATION OF CATION-ANION BALANCE  0.07 SIGMA

            LABORATORY PH        7.50  CARBONATE HARDNESS AS CACO3    175
          FIELD TEMPERATURE      0.7 C NON-CARB. HARDNESS AS CACO3     23
CALCULATED DISSOLVED SOLIDS    339.4      TOTAL HARDNESS AS CACO3    197
 EVAPORATED SOLIDS AT 105 C             TOTAL ALKALINITY AS CACO3    175
    SPECIFIC CONDUCTANCE IN             LANGLIER SATURATION INDEX
      MICROMHOS/CM AT 25 C     392.0       RYSNAR STABILITY INDEX
    SODIUM ADSORPTION RATIO      0.4        TECH. CORROSION INDEX

                          ADDITIONAL PARAMETERS
LAB.TURBIDITY (JTU)     <.9


NOTE. PARAMETERS ARE TOTAL DISSOLVED UNLESS LABELED TR-TOTAL RECOVERABLE
   DILUTE SPECIFIC CONDUCTANCE                  PERCENT REACTANCE VALUES
MEAS DSC      0.    CALC DSC     448.     CA  MG  NA  K   CL  SO4 HCO3 CO3 NO3
     ERROR DSC    0.0                     54  34  12  0    1   21   78   0   1
ANALYST  KK                                     PROCESSING PROGRAM 72(REV3)
 NOTE. IN CORRESPONDENCE RELATED TO THIS ANALYSIS REFER TO NUMBER  73 2192
```

PARKVIEW WEST

A RECREATIONAL DEVELOPMENT

Ground Water Observations

August 14, 1974

Parkview Plat Test No.	1	2	3	4	5
	May 27, 1971	June 13, 1972	Oct. 1973	June 16, 1974	Aug. 4 & 5, 1974
I.	24"	24"	22"	18"	30"
II.	31"	30"	30"	28"	32"
III.	DRY	DRY	DRY	DRY	DRY
IV.	DRY	DRY	DRY	DRY	DRY
V.	DRY	DRY	DRY	DRY	DRY
VI.	DRY	DRY	DRY	DRY	DRY
VII.	DRY	DRY	DRY	DRY	DRY
VIII.	DRY	DRY	DRY	DRY	DRY
X.	DRY	DRY	DRY	DRY	DRY
XI.	DRY	DRY	DRY	DRY	DRY
XII.	DRY	DRY	DRY	DRY	DRY
XIII.	DRY	DRY	DRY	DRY	DRY
XIV.	DRY	DRY	DRY	DRY	DRY
XV.	DRY	DRY	DRY	DRY	DRY
XVI.	DRY	DRY	DRY	DRY	DRY
XVII.	DRY	DRY	DRY	DRY	DRY

Parkview Plat Lot No.	6*
	Aug. 4 & 5 1974
1	36"
2	DRY
3	DRY
4	DRY
5	DRY
6	DRY
10	DRY
11	DRY
12	DRY
16	DRY
17	DRY
22	DRY
24	DRY
26A	78"
26B	DRY
29	DRY
30	DRY
31A	DRY
31B	96"
33	78"
34	DRY
35	DRY
36	90"
37	90"
S Park	48"

Measurements By:

1. D. Zollman, Public Health Engineer, Department of Health and Environmental Sciences
2. Developer - L. W. Spain
3. Developer, L. W. Spain, and Al Keppner, Soil Scientist, Department of Health and Environmental Sciences
4. Developer - L. W. Spain
5. Developer, L. W. Spain, and observed by Al Keppner, Department of Health and Environmental Sciences
6. Morrison-Maierle, Inc., consulting engineers, Al Keppner, Department of Health & Environmental Sciences, and Developer, L. W. Spain

* See Morrison-Maierle, Inc. report, dated August 14, 1974

MORRISON-MAIERLE, Inc.
consulting engineers

910 HELENA AVENUE / HELENA, MONTANA 59601
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SOIL LOGS
PARK VIEW TEST SUBDIVISION
(Field Observations
Unified Soil Classification System)
Observations August 4, 5, 1974

SOIL LOGS

S1

0-24"	Silty Sandy Top Soil
24"-60"	Silty Sands Water Seeping in at 36" (GM)
60"-120"	Silty Sands (Grey) with rounded coarse granular material to 16" (GM)

Water Table at 36" (Approximate elevation 5732)

S2

0-40"	Silty Sandy Top Soil
40"-120"	Poorly graded gravels with rounded coarse granular material to 18" (GP)

No Water Table observed to 120"

S3

0-30"	Silty Sandy Top Soil
30"-120"	Poorly graded gravels with rounded coarse granular material to 30" (GP)

No Water Table observed to 120"

S4

0-4"	Silty Sandy Top Soil
4"48"	Silty Sands (SM)
48"-120"	Poorly graded gravels with rounded coarse granular material to 12" (GP)

No Water Table observed to 120"

S5

0-24"	Silty Sandy Top Soil
24"-96"	Silty Sands (SM)
96"-120"	Poorly graded gravel with rounded coarse granular material to 12" (GP)

No Water Table observed to 120"

S6

0-12"	Silty Sandy Top Soil
12"-120"	Poorly graded gravels with angular blocky material to 18" (GP-SP)

No Water Table observed to 120"

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S10

0-8"	Silty Sandy Top Soil
8"-120"	Poorly graded gravels with angular blocky material to 18" (material transitions from silter material at 8" to sandier at 120" (GP)

No Water Table observed to 120"

S11

0-12"	Silty Sandy Top Soil
12"-96"	Poorly graded gravels with angular blocky material to 12", sands being dark colored (GP)
96"-120"	Poorly graded gravels with angular blocky material to 12", sands being lighter brown (GP)

No Water Table observed to 120"

S12

0-6"	Silty Sandy Top Soil
6"-108"	Poorly graded gravels with angular blocky coarse granular material to 30" (GP)

No Water Table observed at 108"

S16

0-14"	Silty Sandy Top Soil
14"-30"	Silty Sands medium brown (GM)
30"-120"	Poorly graded gravels with rounded coarse granular material to 24" (GP)

No Water Table observed to 120"

S17

0-7"	Silty Sandy Top Soil
7"-18"	Poorly graded gravels with rounded coarse granular material to 8" (GP)
18"-120"	Poorly graded gravels with rounded coarse granular material to 14" (GP)

No Water Table observed to 120"

Field Mechanical Analysis:

Over 2mm fraction 84% (By Weight)
Under 2mm fraction 16%

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S22

0-10"	Silty Sandy Top Soil
10"-30"	Poorly graded gravels with rounded coarse granular material to 6" (on north side of hole, top soil extends to 36") (GP)
30"-120"	Poorly graded gravels with rounded coarse granular material to 16" (GP)

No Water Table observed to 120"

S24

0-10"	Silty Sandy Top Soil
10"-24"	Poorly graded gravels with rounded coarse granular material to 6" (GP)
24"-120"	Poorly graded gravels with rounded coarse granular material to 20" (GP)

No Water Table observed to 120"

S26A

0-20"	Silty Sandy Top Soil
20"-78"	Silty gravels with rounded coarse granular material to 19", slightly plastic (GM)
78"	Water Table (Approximate elevation 5749)

S26B

0-6"	Silty Sandy Top Soil
6"-108"	Poorly graded gravels with rounded coarse granular material to 19" (GP)

No Water Table observed to 108"

S29

0-20"	Silty Sandy Top Soil
20"-72"	Poorly graded gravels mixed with silty sands with some scattered angular blocky coarse granular material to 12" slightly plastic (SW-SP)
72"-120"	Poorly graded gravels with angular blocky coarse granular material to 12" (GP)

No Water Table observed to 120"

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S30

0-20"	Silty Sandy Top Soil
20"-30"	Silty Sands slightly plastic (SM-SW)
30"-120"	Poorly graded gravels with rounded coarse granular material to 20" (GP)

No Water Table observed at 120"

S31A

0-12"	Silty Sandy Top Soil
12"-30"	Silty gravels, gravel-sand-silt mixtures to poorly graded gravels with rounded coarse granular material to 16" (GM-GP)
30"-120"	Poorly graded gravels with rounded coarse granular material to 16" (GP)

No Water Table observed to 120"

S31B

0-24"	Silty Sandy Top Soil
24"-60"	Silty Sands (SP)
60"-96"	Poorly graded gravels with rounded coarse granular material to 16" (GP)
96"	Water Table (Approximate elevation 5728)

S33

0-7"	Silty Sandy Top Soil
7"-40"	Silty Sands slighty plastic (SM)
40"-78"	Clayey gravels, gravel and clay mixtures with rounded coarse granular material to 36", moderately plastic (GC)
78"	Water Table (Approximate elevation 5727)

S34

0-6"	Silty Sandy Top Soil
6"-18"	Silty gravels, gravel sand mixtures with rounded coarse granular material to 8" (GP)
18"-120"	Poorly graded gravels with rounded coarse granular material to 20"(GP)

No Water Table observed to 120"

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S35

0-5"	Silty Sandy Top Soil
5"-36"	Silty gravels, gravel-sand-silt mixtures with rounded coarse granular material to 8" (GM)
36"-104"	Poorly graded gravels with rounded coarse granular material to 22" (GP)
104"	Water Table (Approximate elevation 5726)

S36

0-8"	Silty Sandy Top Soil
8"-30"	Silty gravels, gravel-sand-silt mixtures with rounded coarse granular material to 8" (GM)
30"-90"	Poorly graded gravels with rounded coarse granular material to 20" (GP)
90"	Water Table (Approximate elevation 5727)

NOTE: Above description on west side test hole, on east side test hole, sandy, silty, clayey material extends from 24"-48" then transitions to poorly graded gravels.

S37

0-6"	Silty Sandy Top Soil
6"-18"	Silty gravels, gravel-sand-silt mixtures with rounded coarse granular material to 8" (GM)
18"-90"	Poorly graded gravels with rounded coarse granular material to 16" (GP)
90"	Water Table (Approximate elevation 5730)

Field Mechanical Analysis:

Over 2mm fraction 83% (By Weight)
Under 2mm fraction 17%

SPark

0-24"	Silty Sandy Top Soil, slightly plastic (SM)
24"-48"	Poorly graded sands, gravely sands to silty sands (SP SM)
48"	Water Table (Approximate elevation 5725)

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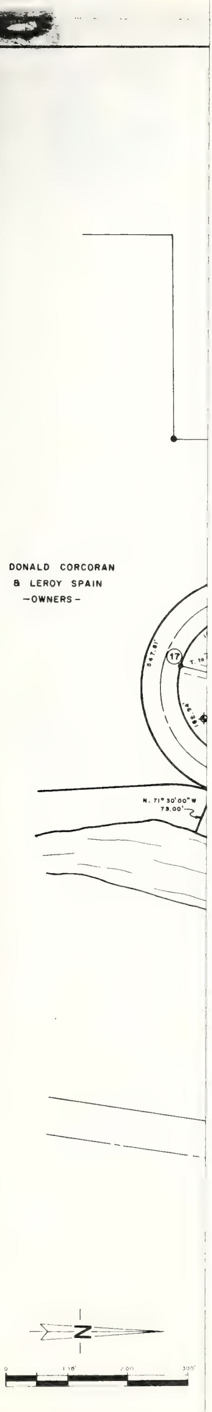
PERCULATION TEST RESULTS
PARK VIEW WEST SUBDIVISION
Conducted August 5, 6 12 1974

HOLE	DEPTH	PERC. RATE	HOLE	DEPTH	PERC. RATE
*P1	17"	(See Note 1 Below)	P19	20"	8 min/inch
P2	18"	10 min/inch	P20	15"	12 min/inch
P3	16"	10 min/inch	P21	19"	11 min/inch
P4	16"	10 min/inch	P22	17"	9 min/inch
P5	18"	14 min/inch	P23	17"	9 min/inch
P6	20"	10 min/inch	P24	17"	15 min/inch
P7	20"	27 min/inch	P25	18"	6 min/inch
P8	20"	60 min/inch	P26	18"	16 min/inch
P9	17"	7 min/inch	P27	18"	16 min/inch
P10	12"	20 min/inch	P28	18"	56 min/inch
P11	20"	48 min/inch	P29	22"	10 min/inch
P12	18"	20 min/inch	P30	18"	44 min/inch
P13	18"	30 min/inch	P31	18"	10 min/inch
P14	18"	60 min/inch	P32	18"	12 min/inch
P15	18"	8 min/inch	P33	18"	10 min/inch
P16	19"	8 min/inch	P34	18"	10 min/inch
P17	16"	10 min/inch	P35	19"	10 min/inch
P18	20"	9 min/inch	P36	22"	10 min/inch
			P37	22"	10 min/inch

NOTE: 1: Recommend drainfield for Lot 1 be placed on Lot 2 due to talus blocks, close proximity to spring water, and ground water elevation on lower portion of Lot. Perculation test hole indicated water table at 14" below ground surface.



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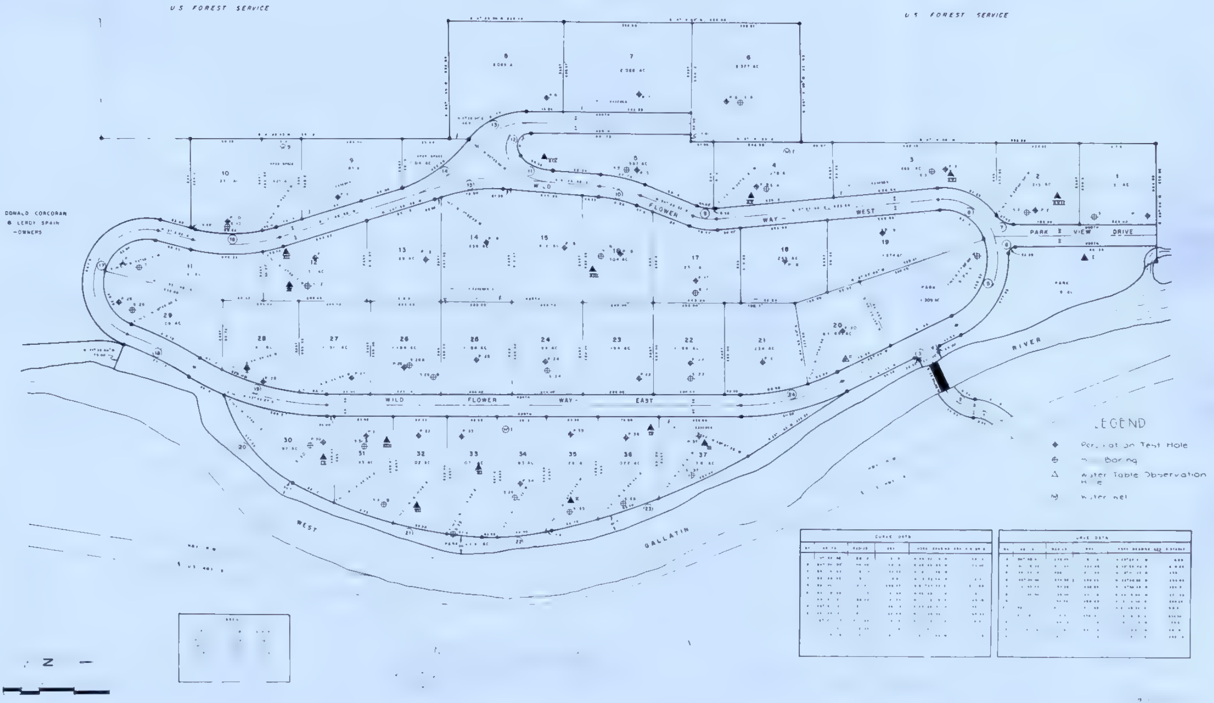
SUBDIVISION

PARKVIEW WEST

A PLANNED RECREATIONAL DEVELOPMENT

LOCATED IN THE E 1/2 OF SECTION 1, T 6 S, R 4 E, PMM
GALLATIN COUNTY MONTANA



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STATE DOCUMENTS

JUN 19 1973

State of Montana

State Department of Health
and Environmental Sciences
P.O. Box 1031
~~HELENA, MONTANA~~
Kalispell, Montana 59901

JOHN S. ANDERSON, M.D.
EXECUTIVE OFFICER

June 18, 1973

Subject: Peters Trailer Court, near Kalispell

Gentlemen:

Enclosed is an environmental impact statement for the Peters Trailer Court, a proposed mobile home development now under consideration for approval just north of Kalispell, Montana.

Under Montana law, a person or agency has 45 days to submit comments and/or supply additional information.

Following the statutory period, the project will be reviewed in light of comments received that are applicable under Montana law.

Sincerely,

David P. Nunnallee

David Nunnallee, P.E.
Public Health Engineer

DN:sh

Enclosure

DRAFT ENVIRONMENTAL IMPACT STATEMENT

for

Peters Trailer Court

Flathead County, Montana

June 18, 1973

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling the licensing of Trailer Courts, Section 69-5602; and the act to control water pollution, Section 69-4801 to 4827, the following statement is prepared by the State Department of Health and Environmental Sciences concerning Peters Trailer Court, north of Kalispell in Flathead County, Montana, for which a submittal has been received requesting a license to operate as an approved trailer park facility.

Description of Project and Proposed Action:

The Montana State Department of Health and Environmental Sciences has received a request for approval and licensing of a 15-unit trailer court, just north of the Kalispell city limits, but not contiguous thereto. The area, shown on the attached map, includes approximately 5 acres, and is located in the SE$\frac{1}{4}$, NW$\frac{1}{4}$, Section 6, T.28N., R.21W., P.M.M. The applicant-owner is Mr. and Mrs. Robert Peters, Route 3, Kalispell.

Topography and Soils:

The proposed development is located on a flat terrace approximately $\frac{1}{4}$ mile west of the Stillwater River. The property is cleared, and barren except for a heavy cover of grasses. The property is entirely free from any chance of flooding.

According to the 1960 S.C.S. Soil Survey for Flathead Valley, the subject land includes two soil types in approximately equal proportions. These soil types are described below:

North portion of land:
A blend of three soil types including Tally fine sandy loam, 0-3% slope, Blanchard very fine sandy loam, 0-3% slope, and Flathead fine sandy loam, 0-3% slope. Soil limitations for both building sites and septic tank use are "slight".

South portion of land:
A combination of soils very similar to that described above, but with a ground slope of 3 to 7%. Soil limitations for septic tank use are listed as "moderate" because of the slope.

The U.S. Soil Conservation Service has included these soils in capability unit IIes-1, which is described as "moderately fertile", and "suitable for all crops" grown in this region. Construction of the proposed trailer court would preclude any future use of this area for agricultural purposes.

The soils information quoted above was developed for surface soils to a depth of only about three feet. The underlying strata is somewhat questionable. A gravel

pit some 1000 feet south of the proposed development shows a fairly thick gravel strata near the surface, but a well log recorded by the Montana Bureau of Mines and Geology, for a well about the same distance north of the proposed development, records a surface strata of clay to a depth of 58 feet. The surface ten feet of soil at the proposed site should be investigated with an observation hole, and if the soil is other than gravel, percolation tests should be made before subsurface sewage disposal is designed or approved.

Surrounding Development:

The proposed trailer court would be the first in an area which has been developing rapidly with standard housing. One housing subdivision development of considerable size is located just to the west and north of the proposed trailer court, and another subdivision is presently under construction less than 1000 feet to the south. Within the nearby Kalispell City limits, south of the proposed trailer court, the land has been rapidly developing for commercial and professional uses including a recreation complex, a medical complex, a nursing home, a proposed hospital and a church. Several individual homes also are located in the immediate area.

Some of the residents in the area have expressed concern about the proposed mobile home complex, and there is an attempted zoning effort under way to prevent its construction.

Sewage Disposal:

The proposed method of sewage handling is by means of septic tanks with subsurface drainfield final disposal. The surface soils appear well suited for this purpose, but as mentioned above the underlying soils to a depth of 10 feet should be examined before the sewage system is designed.

Water Supply:

Water supply would be by means of a drilled well, pressure storage tank and distribution system, built according to this Department's specifications for trailer courts. The well is not yet drilled, but well logs in the vicinity indicate that water is available at a depth of approximately 250 feet. For a 15-trailer court, a well rated at some 57 gallons per minute would be necessary to meet this Department's regulations. If such flows cannot be obtained, alternatives would include connecting to the Kalispell city water system, or construction of a large gravity storage tank, the bottom of which would necessarily be some 50 feet above ground level.

Probable Impact on Environment:

The impact of the proposed development on the environment is expected to be slight. The area is presently a cleared field in grasses, in an area which is relatively developed. The field probably provides habitat for some game birds, and this habitat would be lost.

The main impact on the environment would be a loss of aesthetics in the immediate area of the trailer court.

Short Term vs. Long Term Uses of the Environment:

The proposed trailer court is located in one logical direction of expansion of the City of Kalispell, and undoubtedly will some day be incorporated therein. The eventual long term use of the area would, therefore, be for permanent housing or for commercial use. The proposed trailer court represents little long-term commitment of the land as few permanent facilities would be constructed, and at least for the present no subdivision of the land would take place. The proposal, therefore, does not appear to be a long term commitment of the land.

Irreversible and Irretrievable Commitments of Resources:

The only significant resources which would be involved in the proposed development would be the materials to construct the mobile homes, and the withdrawal of water from a deep level aquifer. No decision involved in this impact statement could affect the construction of mobile homes because, in the absence of the proposed court, the mobile homes would simply be located elsewhere.

Groundwater is an important resource in the Flathead valley. Any groundwater aquifer has a use limitation which, when exceeded, will result in depletion of the water it contains. Normally, an aquifer is recharged faster than it is drawn down, and no serious depletion occurs. To date, very few problems of aquifer depletion have been encountered in the Flathead valley, and none are expected with the proposed trailer court. Water usage by this development, then, constitutes no irretrievable commitment of resources.

Alternatives to Proposed Action:

1. No Development
   The area could be left in its natural state with no trailer court development.

2. Agricultural Use
   The area could be used for agricultural purposes, and according to soil classifications in the area, crops could be successfully cultivated indefinitely.

3. Other Development
   Other types of development of the land, such as subdivision or commercial use, could occur, and such development might be more commensurate with surrounding land use.

4. Preservation of the Area
   The area could be preserved indefinitely as a public park or recreation area. A sponsor for this purpose would be necessary, and there seems to be nothing on the property of unusual or significant character to be preserved by such action.

Sources of Information:

A personal knowledge of the area, and a field inspection, aided in the preparation of this statement. In addition, the following references were utilized:

1. Montana Bureau of Mines & Geology, "Basic Water Data Report No. 3, Kalispell Valley, Montana", 25 pp. & map, (1966).

2. U.S. Dept. of Agriculture, Soil Conservation Service, "Soil Survey, Upper Flathead Valley Area, Montana", 67 pp. + 40 maps. (1960).

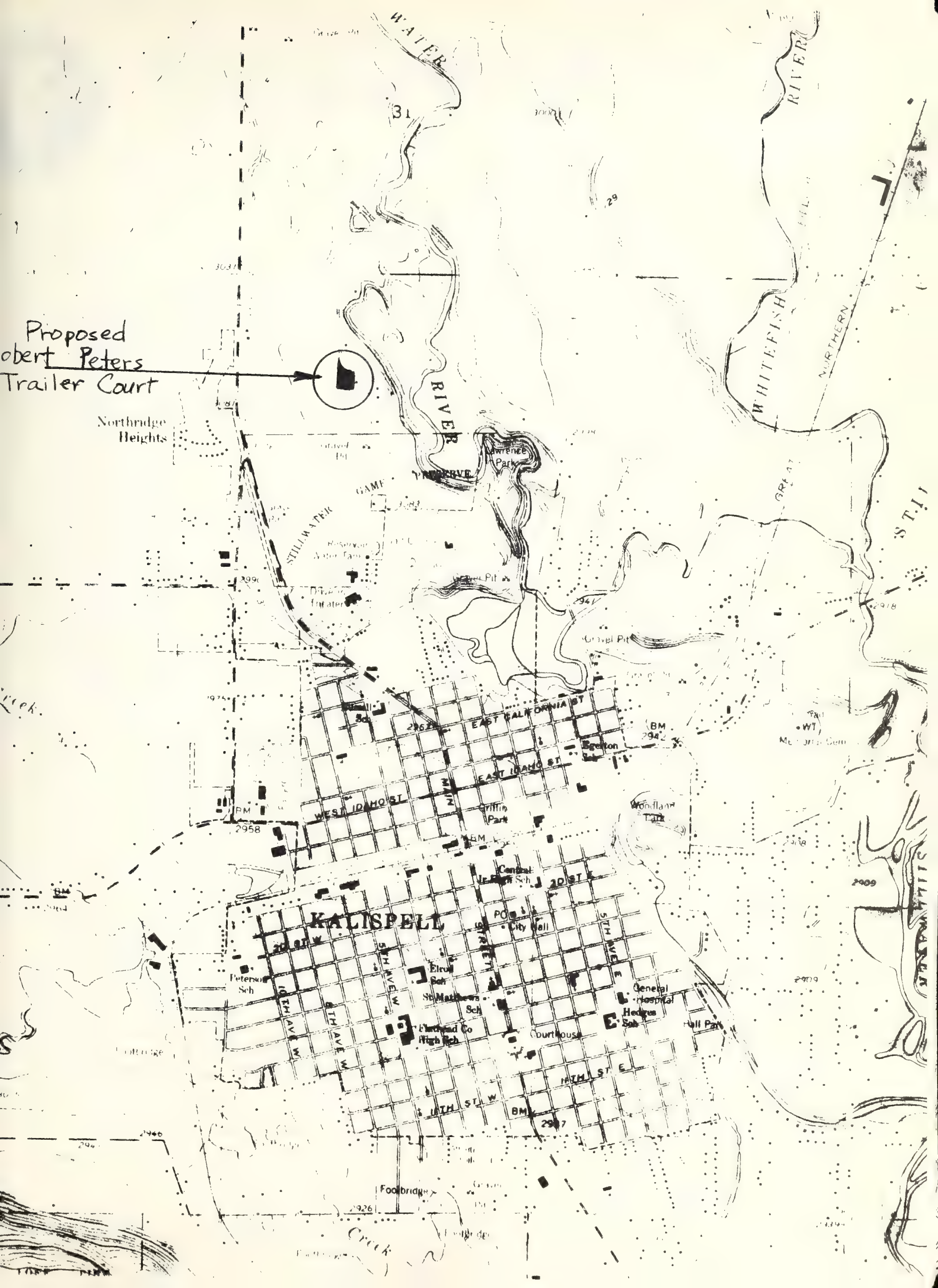
3. U.S. Dept. of Agriculture, Soil Conservation Service, "Engineering Properties & Soil Interpretations For Use In Resource Planning & Development; A Supplement to Soil Survey, Upper Flathead Valley Area, Montana", 34 pp. (1970).

This Statement has been Prepared By:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Washington and Montana.

Copies Sent To:

1. Mr. and Mrs. Robert Peters, Route 3, Kalispell
2. Mr. Fletcher Newby, Montana Environmental Quality Council, Helena
3. Montana Fish and Game Department, Helena
4. Montana State Department of Health & Environmental Sciences, Helena, Attn: Jim Peterson
5. Montana State Department of Intergovernmental Relations, Division of Planning and Economic Development, Capitol Station, Helena
6. Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
7. Board of County Commissioners, Flathead County, Kalispell, Montana
8. Flathead County Areawide Planning Board, 3 Ford Building, Kalispell
9. Bruce McIntyre, M.D., Flathead County Health Officer, Whitefish
10. Les Espeland, R.S., Flathead County Sanitarian, Kalispell
11. Honorable Lawrence Bjorneby, Mayor, City of Kalispell
12. Mr. Wayne Herman, President, Flathead Wildlife, Inc., P.O. Box 4, Kalispell
13. Dr. Lawrence Sonstelie, President, Flathead Valley Community College Ecology Club
14. Polson Outdoors, Inc., P.O. Box 1432, Polson
15. Student Environmental Research Center, Room 212 Venture Center, Missoula
16. Mr. Bob Muth, Montana Wilderness Association, Flathead Chapter, Rt. 4, Kalispell
17. Montana State Library, 930 E. Lyndale Avenue, Helena


Proposed
obert Peters
Trailer Court
Northridge Heights
WATER
RIVER
RIVER
WHITEFISH
RIVER
GREAT NORTHERN
STILLWATER
GAME PRESERVE
Lawrence Park
Gravel Pit
Drive-in Theater
KALISPELL
EAST CALIFORNIA ST
EAST IDAHO ST
WEST IDAHO ST
MAIN
STREET
Griffin Park
Woodland Park
Central Jr High Sch
2D ST E
2D ST W
PO
City Hall
Elrod Sch
St Matthews Sch
Flathead Co High Sch
Courthouse
General Hospital
Hedges Sch
Edgerton Sch
Peterson Sch
5TH AVE W
5TH AVE E
8TH AVE W
10TH AVE W
11TH ST E
11TH ST W
Footbridge
Creek
Memorial Gem
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3000
31
29

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR
A. C. Knight, M. D., F. C. C. P
ACTING DIRECTOR

May 20, 1976

MAY 20 1976

STAT

Re: The Ranch
Flathead County

Honorable Thomas Judge, Governor, State of Montana, Helena
Citizens Advocate, Helena
Environmental Quality Council, Helena
Montana Fish and Game Department, Helena
Department of Highways, Helena
Department of Community Affairs, Division of Planning, Helena
Department of Natural Resources and Conservation, Helena
Department of State Lands, Helena
Montana State Library, Helena
Board of County Commissioners, Courthouse, Kalispell
City-County Planning Board, Courthouse, Kalispell
Sanitarians, Box 919, Kalispell
Environmental Information Center, Box 12, Helena
C. W. Gonder, 823 East Call Street, Livingston
Mrs. Vel Jansen, 430 South Sixth, Livingston
Mrs. Winifred Lucky, 420 South Sixth, Livingston
Mary Lee Reese, League of Women Voters, 29 South Alta, Helena
Tom Horobik, Pres., Montana Wilderness Assn., 4000 4th Ave. N., Great Falls
Northern Rockies Action Group, #9 Placer Street, Helena
Paul T. Richards, 902 North Park, Helena
John Schillinger, Microbiology Department, Montana State University, Bozeman
Concerned Citizens for a Quality Environment, c/o Ron Erickson, Chairman,
    University of Montana, Missoula
Student Environmental Research Center, University of Montana, Room 212,
    Venture Center, Missoula
John P. Duke, Assistant Vice President, Land Management, Burlington
    Northern, 650 Central Building, Seattle, Washington, 98104
Herb Anderson, P. O. Box 42, Raynesford, MT 59469
Mike Roach, Air Quality Bureau, Environmental Sciences Division
Don Willems, Water Quality Bureau, Environmental Sciences Division
State-Local Relations Project, Commission on Local Government,
    State Capitol, Helena
Hugh Schaefer, 206 Ben Hogan Drive, Missoula
Charles Jonkel, School of Forestry, University of MT, Missoula
Flathead County Areawide Planning Organization, 3 Ford Building, Kalispell
Dan Averill, Flathead Lake Lodge, Big Fork
Doyle Enterprises, 285 North Main, Kalispell
Joe Eslick, Superintendent of Schools, Big Fork
Joe Nelson, Chief of Big Fork Volunteer Fire Dept., Big Fork
Montana State Highway Dept., Kalispell
Jim Gragg, Dist. Supervisor, Kalispell Division, Dept. of Natural Resources
    & Conservation, Kalispell

District Ranger, Swan Lake Ranger Dist., Bigfork
D.C. McIntyre, M.D., Flathead County Health Officer, Box 427, Whitefish
Mr. Wayne Herman, President, Flathead Wildlife, Inc., Box 4, Kalispell
Mr. John Cochrane, Flathead Lakers, Inc., Box 447, Big Arm
Dr. Lawrence Sonstelie, President Flathead Valley Community College, Ecology Club, Kalispell
Polson Outdoors, Inc., Box 1432 Polson
Mr. Bob Muth, Montana Wilderness Assoc., Flathead Chapter, Route 4, Kalisel
Dr. John Tibbs, Director, U of M Biological Station, Yellow Bay
Trout Unlimited, c/o Mr. Gary Hanson, Secy., 136 1st Avenue West, Kalispe
Regional Planning Association of Western Montana, 133 West Main, Missoula
Mr. Jack Whitney, Box 100, Bigfork
Mr. Lex Blood, Co-Chairman, FLATHEAD COLITION, c/o Flathead Community College, Kalispell
Mr. J. Potoczny, East Shore/Swan Planning Advisory Group, c/o Big Fork Elementary School, Big Fork
Mr. D.G. Jones, Missoulian Correspondent, Box 287, Polson

Gentlemen:

The enclosed draft environmental impact statement has been prepared for The Ranch in Flathead County. This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of this statement at which time it will be assumed that the persons or agencies consulted have no comments to make. One extension of time not to exceed fifteen (15) days is available upon request. All comments should be sent to the undersigned.

Sincerely yours,

Edward W. Casne, Chief
Subdivision Bureau
Environmental Sciences Division
Phone: 449-3946

EWC:TE:ti
Enclosure
cc: Ben Wake
Tom Ellerhoff
Terry Carmody

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

May 20, 1976

DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Ranch, A Proposed Subdivision
Flathead County

Pursuant to the Montana Environmental Policy Act, Section 69-6504, (b)(3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001; and the act to control water pollution, Section 69-4801 to 4827, the following draft environmental impact statement (EIS) was prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the request for administrative approval of THE RANCH, a proposed subdivision near Bigfork in Flathead County, Montana.

Procedural considerations have been satisfied according to the law and regulations which were in effect at the time of the formal preliminary plat submittal (i.e. May, 1975). For the record it should be noted the project herein under review has already received conditional approval by the Flathead County Health Department, the Flathead County Board of County Commissioners, and the Flathead County Planning Organizations. Significant constraints included in the various local land use approvals include:

1. THAT, the access approach to Highway 35 be approved by the State Department of Highways, and,

2. THAT, all further proposals (within the ownership will be reviewed in accordance with HB 666 and must be submitted with a master plan for all areas to be developed.

DESCRIPTION:

The Ranch is a proposed subdivision which will be situated in a previously undeveloped area about two miles south of Bigfork, Montana (N 1/2, Sec. 6, T26N, R19W, PMM - see the attached map #1).

The developers, Quarter Circle L.A. Ranches, Inc., have indicated that this 107.45 acre developement will possibly be the first of several development phases, which when completed, will encompass approximately 1,800 acres. However, an official for the corporation said no formal plans extend beyond the present proposal, and development of the remaining property will depend on the success of the first phase and future market conditions.

The intended subdivision is bounded by private timberland to the north; Quarter Circle Ranch and state forest timberland to the east; Quarter Circle and national forest timberland to the south, and Quarter Circle timberland to the west.

The plans for phase one call for subdividing 66 acres into 54 lots. The remaining 41 acres will be used as follows: 22 acres for three park areas; two acres for seven bridle paths, and 17 acres for roads.

According to the Flathead County Areawide Planning Organization (APO), the developers said the subdivision will be a second home-retirement type of development. The lots will range from 1.889 acres to .942 acres.

The corporation has drawn up an elaborate set of restrictive covenants aimed at controlling the design and construction of each residence. Homeowners will be responsible for providing their own water and sewage systems. Water will be obtained from wells and septic tanks will be used for sewage disposal.

Representatives of Pacific Power & Light Company and Northwestern Telephone Systems, Inc., said electrical and telephone services will be available to homes in the development. According to a spokesman for the corporation, the telephone and utility lines will be buried.

Current Conditions:

The land is forested and in a semi-primitive state. Most of the hilly country between Montana Highway 35, which forms the western boundary, and Carney Creek, the eastern boundary, is undeveloped timberland. Some development has taken place adjacent to this area, but has been limited to private residences either fronting on or within close proximity to the highway. The Ranch will be the first subdivision in the undeveloped area.

Physical Environment:

1-Terrestrial and Aquatic Life

The mammals living in and around the study area can be grouped into three categories: large mammals (e.g. elk, white-tailed deer, mountain lions and black bear); small mammals (e.g., squirrels, mice and rabbits) and fur bearers (e.g., weasels and coyotes).

Birds in the area may be separated into three classes: waterfowl (e.g., ducks, geese and shorebirds); upland game birds (e.g., ruffed grouse), and other birds (e.g., open field, timber and marsh species, such as sparrows, woodpeckers, robins, osprey and hawks).

The proposed site includes two intermittent streams, but neither support game fish.

The proposed subdivision is in an area which has been termed by the State Department of Fish and Game as ". . . one of the most important white-tailed deer ranges in Region One. . ."

The hills serve as winter range for deer and elk which spend the summer grazing in the nearby mountains. During the winter the snowpack is generally lighter and the southern and western slopes are often free of snow, enabling the animals to browse on shrubs and grasses.

According to a Fish and Game spokesman, small subdivisions do not cause problems, but collectively they can threaten key winter range areas.

"White-tailed deer winter range in Flathead County has been diminished and down graded by a large number of small subdivisions," the official wrote. According to the spokesman, the proposed subdivision will have a "catastrophic" effect on deer that rely on the area as a winter range. Additionally, the impact of the development will be felt by grouse and mountain lions.

The devleopment also might aggravate the problem of nuisance black bears, which the official said exists in some of the developed sections of the Bigfork area.

2-Water Quality, Quantity and Distribution

Surface Water:

Rain and runoff from melting snow will be channeled away from the development by two intermittent streams. One of the seasonal streams is situated between Pommel Drive and Latigo Lane and the other parallels the north side of the road below lots 5 and 6. According to the developer the seasonal nature of the streams prevents either from sustaining fish or aquatic insect life.

The engineer for the project said the main road leading into the subdivision was built two years ago and there has been little erosion due to runoff. He said the roads have been designed to slope in such a manner that runoff will be diverted into areas which have the capacity to absorb the water. An example is the designated green area between Pommel Drive and Latigo Lane. The engineer added that where channeled water must cross a road, culverts will be installed to handle maximum seasonal runoff.

Groundwater:

A test well was drilled on lot 25 in the Pommel Drive addition. According to the lot, the static water level is 250 feet below the surface and the well is 460 feet deep. After four hours of pumping at 445 feet, the well average 50 gallons of water a minute.

The development is too far from Bigfork to utilize the town's water system and the developer does not plan to have a community water system, thus each lot owner will have to drill a well.

The project engineer estimated it will cost each owner about $3,500.00 to drill a well, but this figure could be low. According to another source, a 300 to 350 foot well presently costs from $16.00 to $20.00 a foot to drill or about $6,000.00 to $7,000.00 per well. In practice it is likely that the high cost of individual water supply systems will inevitably lead to the development of multi-familty systems which could become large homeowner systems. Ultimately R.S.I.D. procedures are likely if the projected developments are to be fully realized.

3-Geology and Soil Quality, Stability and Moisture

Geology:

The geologic history of the Bigfork area is largely unknown prior to about five to ten million years ago, when forces deep in the earth began lifting the pre-Cambrian marine sediments which form the mountain blocks in the Swan and Mission ranges. Faulting and folding raised the entire Rocky Mountain province and also caused differential uplift of the mountain blocks over the valleys. The mountains continued to rise intermittently for millions of years.

About two million years ago, climatic changes brought on the increases in precipitation and colder temperatures which initiated the Ice Ages. During the Ice Ages there were three to five major glacial advances and retreats in northwestern Montana. The Flathead Lobe of the Cordilleran ice sheets moved down the Rocky Mountain Trench from Canada and converged with smaller alpine glaciers near Bigfork. The northwesterly flowing Swan Valley glacier merged with the huge, southerly moving Flathead glacier and was bent around the northern end of the Mission Range, in the area of the proposed subdivision. As the Swan glacier overrode the mountains, it scoured the land at the northern end of the range.

The development will be built on glacial till, with the bedrock situated about 435 feet below the surface. The type of bedrock is uncertain because it lies in a transitional area between the Grinnell Formation and the Ravalli Undifferentiated.

A possible danger associated with the basement rock formations is the threat of earthquakes. A major fault line runs north and south just off the east shore of Flathead Lake and splits off the main fault, occur in the area of the proposed development. The splits run parallel to the main fault.

According to Miller Hansen, Geologist for the Montana Bureau of Mines and Geology, the epicenters of two small earthquakes (2.5 and 4.0 on the Ricter Scale) were identified just south of Bigfork and north of the proposed subdivision (see attached map #2).

In a letter to the Flathead County APO, Hansen said, " . . . I can advise that earthquakes present different degrees of hazard as shown by the fact that no serious property damage nor loss of life has ever been reported from the Bigfork area. . . however, it would be wise for architects and builders to keep the hazard in mind in design and construction for the Ranch Unit One Subdivision."

He said shock waves from earthquakes cause more destruction to buildings constructed on alluvium than those built on solid rock. ". . .This is due to the fact that the shock waves travel rapidly through solid rock, but slowly through alluvium, causing a rolling motion that really wracks a building particularly one made of brick or masonry," he said.

It is "improbable" that there will be severe earthquakes in the Bigfork area, Hansen said, but added that the chance is not "impossible." ". . . Every precaution should be taken in construction in the Bigfork area." he concluded.

Soils:

The APO reported that the Soil Conservation Service soil survey does not cover the proposed development area, however according to the firm which conducted a soil study of the site, Doyle Enterprises, Inc., the soil is similar to Whitefish stony silt loam. Characteristically, that soil type has a thin soil mantle and is best suited for growing pine, fir and larch. It is not considered a good soil on which to build homes, roads, or heavily used recreation areas, according to the APO.

Twelve soil samples were taken throughout the proposed development. Ten of the holes contained 4" of top soil and 9'8" of clay and cobbly stone; one contained 6" of top soil, 4" of sand and gravel and 9'2" of clay and cobbly silt loam, and another contained 3" of top soil and 9' of sand and gravel.

Percolation tests were made on all but one lot, lot 33. After presoaking the holes, the slowest absorption rate was 8 min./inch on lot 14 in the Pommel Area, and the fastest rate was 2 min./inch on lots 6 and 7 in the Pommel Area and lots 2, 12, 13, 15, 16 and 19 in the Latigo Area. The average absorption rate was 5 min./inch.

According to the developers' engineer the guidelines for installing septic tanks include:

1) The size of the system will depend on the number of bedrooms:

a)

Number of Bedrooms	Size of Tanks
2 or less	750 gal.
3	900 "
4	1000 "
5	1250 "
6	1500 "

b) All drainfields will have a minimum of 85 linear feet to perforated pipe per bedroom.

2) All septic systems will be subject to final approval by the Flathead County Sanitarian before construction begings.

3) The Flathead County Sanitarian will approve the placement of each septic tank.

4) Any alternatives to replace the sewer system will be approved by the State Department of Health and the County Sanitarian.

5) All septic systems shall conform to the Flathead County regulations for subsurface sewage disposal systems.

If the developers carry out their plans to closely control construction of roads, homes and sewage disposal facilities erosion should be kept to a minimum. Due to the fragile nature of the Whitefish stony silt loam soil type the developers should be particularly alerted for the erosion if a number of homes in the tract are developed simultaneously.

4-Vegetation Cover, Quantity and Quality

The proposed site is forested. The area is about 60 percent trees, 25 percent brush and 15 percent grass. The forest includes mixed stands of douglas fir, 3' to 14'; ponderosa pine, 6' to 16'; birch, 1' to 6'; western larch, 3' to 14', and pockets of lodgepole pine. Based on the growth rates, vigor and spacing it appears the site would be classified as medium to excellent for growing douglas fir, ponderosa pine and larch.

A forester for the APO cruised the site and reported that he did not find any evidence of dwarf mistletoe, a common timber problem in the area. However, he noted that adjacent lands to the east and south have stands which have been infested. The APO forester said the site contained a "substantial amount" of merchantable timber, and speculated that if selectively harvested and managed in conjunction with the landowner's remaining property, timber harvesting could be economically self-sustaining.

The proposed development will remove 107 acres of productive timberland from the resource base in Flathead County, and further development on adjacent lands will substantially decrease the number of forested acres the forester said.

According to an APO report, the ground cover is dence and the danger of fire varies from slight to high during the dry season, which is generally in late summer and early fall.

5-Aesthetics

The proposed development cannot be seen from Highway 35. It is screened from view by trees and the west slope of a steep hill. The hill is part of a number of hills which form the northern boundary of the Mission Mountain Range. The picturesque Missions stretch from the southern end of the Flathead Valley near St. Ignatius, north to Bigfork.

The mountains in the southern part of the range have steep slopes, which at times become sheer rock walls, leading up to craggy peaks. Proceeding north the rugged mountains gradually dwindle in height, forming the eastern shore of Flathead Lake and finally tapering off into the hill country north of Bigfork.

There are few locations in Montana or the nation which offer such spectacular scenery. In addition to Flathead Lake and the mountain ranges which bound its east and west shores, the Swan Range looms east of the area, and on a clear day it is possible to view the Whitefish Range which forms the northern boundry of the Flathead Valley.

Traditionally, the intended subdivision site has been reserved for timber production and recreational use. The area is not pristine like a wilderness area, but it does offer a semi-primitive setting.

Rough hewn roads and bridle paths lace through the area. The use of these byways is normally limited to summer vacationers and hunters in the fall.

The open timber enables a variety of bushes and grasses to thrive and the understory growth in turn provides food and cover for a variety of wildlife.

Most of the land is shaded by the forest canopy, but lots 1-4 lie along a sparsley wooded ridge which provides a panoramic view of Flathead Lake and the Salish Mountains west of the lake.

Although the subdivision will generally be out of public view, its mere presence will permanently alter the natural forest setting. No matter how tightly controlled, building homes in such close proximity will change the aesthetic values from a forested, semi-primitive area to a more suburban, urban setting.

6-Air Quality

Compared to many parts of the Flathead Valley, the air quality around Bigfork and the proposed subdivision site is quite good. But, light winds and frequent temperature inversions make the area vulnerable to air pollution problems.

The temperatures are generally mild for an area in the mountain region. The maximum, minimum and average temperatures for the Bigfork area are:

TEMPERATURE (DEGREE F)

	J	F	M	A	M	J	J	A	S	O	N	D
Average Temp.	22	27	32	43	52	58	64	63	54	44	33	26
Average Max.	29	35	41	55	66	72	81	81	69	55	40	33
Extreme Max.	53	56	68	80	89	96	98	98	94	80	63	54
Average Min.	14	18	22	31	38	44	47	46	39	32	25	20
Extreme Min.	-40	-33	-32	4	15	28	32	32	21	7	-31	-41

The East Shore-Swan Planning Advisory Group noted that the northern portion of the Flathead Valley is susceptible to strong winds and recommended that structural design standards for homes in the subdivision take into consideration the danger posed by high winds.

Near Bigfork, afternoon winds move away from the morning winds toward Flathead Lake. This land-sea breeze effect is most pronounced in the summer. The following tables show the shift in prevailing wind and the maximum wind estimates for each month:

Wind
PREVAILING WIND ESTIMATE (MILES/HR)
Direction

J	F	M	A	M	J	J	A	S	O	N	D
W	SW	SW	SW	SW	SW	SW	SW	SW	W	W	W

Speed
under 10 miles/hr

MAXIMUM WIND ESTIMATE (MILES/HR)
Most Probable
Directions

J	F	M	A	M	J	J	A	S	O	N	D
NE SW	NE SW	NE SW	SW	VARIABLE				SW	NE SW	NE SW	NE SW
Speed (MPH)											
55	55	50	45	40	40	40	40	45	50	50	55

The high frequency of temperature inversions in the Flathead Valley prompted the National Weather Service to conduct an air quality study in 1963-64. Weather service personnel through visual observation, complied the following information:

INVERSION OCCURRENCE (DAYS)

	J	F	M	A	M	J	J	A	S	O	N	D
Night	no data						26	28	27	26	11	23
Day (6AM-6PM)	no data						22	26	27	26	10	25

It appears the air quality in and around the proposed subdivision could be effected by road dust or smoke from burning trash. However, the developer plans to control both. Initially, dust from road construction may degrade air quality, but plans call for the road to be surfaced with gravel.

Garbage and trash will be disposed of on an individual basis by property owners. Refuse containers will be placed at a collection point along Highway 35 near the turnoff to the development. The containers will be regularly emptied and the material deposited in the Flathead County landfill.

The developers estimate that 125 lbs. of solid waste will be generated a day when the occupancy rate is 25 percent. When the development has an occupancy rate of 90 percent the amount of solid waste generated daily is estimated to be 400 lbs.

According to Russ Rieben, head of the county's landfill operation, there is enough room to accomodate refuse from the proposed development.

7-Unique, Endangered, Fragile or Limited Environmental Resources

Large tracts of undeveloped privately owned land could indeed be termed limited and unique in Flathead Valley. The scenic recreational and financial attractions have resulted in the subdivision of thousands of acres of private land.

The sluggish national economny temporarily slowed the brisk sales to United States customers, but the land moritorium in British Columbia and high price of land in other Canadian proviences, prompted an influx of Canadian money into the second home market in the Flathead area.

It's impossible to predict that every acre of private land in the Flathead Valley will eventually be split into second home sites, but when ever land is subdivided, sold and developed its character is permanently changed.

8-Historical and Archaelogical Sites

With the gradual melting of the ice of the Pleisocene glacial period, a variety of flora and fauna invaded the area. When the flora and fauna had developed sufficiently to meet human food needs, which may have been 3,000 to 5,000 years ago, aboriginal inhabitants appeared, migrating from areas to the south and west which had escaped glaciation.

When the white man came, the area was populated by the Upper Kootenai tribe with the Kalispell to the west, the Salish to the south and the Blackfeet to the east.

The arrival of relatively large numbers of white men in the 1880' signaled the end of the Indian's traditional way of life, Indian-white relations in the study area were peaceful except for one or two minor skirmishes.

The comparatively late arrival of white men to northwestern Montana was due to the extreme hostility of the feared Blackfeet Indians to the east. In 1809 David Thompson of the Northwest Trading Company was the first white man to view this region.

The discovery of gold in Montana in 1858 brought miners to the west central portion of the state in the following decade. The Bigfork area it thought to have been visited by prospectors in the late 1860's and 1870's.

With the completion of the Northern Pacific Railroad through western Montana in 1882, the influx of settlers began. The first white man to live in the area was Frank Linderman, later a well known author and friend of the Indians.

The names and numbers of settlers were unrecorded during the next decade, but around 30 home and cabin sites mostly occupied by retired trappers, were recorded in an 1893 survey.

Many of the early residents were part-time farmers who spent considerable time hunting, fishing and trapping. After 1890 the true farmers began to emerge and gradually bought out the original settlers or homesteaded land of their own.

Clearing the forest was slow and arduous work. Crops consisted mainly of spring wheat, oats and barley. General farming was somewhat limited because of short growing seasons and frequent frost which occasionally occur during the summer months. Later, because of frost danger, cabbage and cool weather root crops such as potatoes, carrots and rutabagas were grown in large quantities and stored in root cellars. The earliest white settlers used trees for buildings, fences and fuel. Many trees were burned in the process of land clearing. Due to extensive logging operations and improved machinery, eventually more land was cleared and put into cultivation or pasture.

Increasing settlement created a demand for more finished lumber. The first sawmill in Flathead Valley was a waterpowered mill built in 1884 near Foy's Lake, and shortly thereafter several small mills began production. The J. O'Brian Lumber Company constructed a mill at Somers with a yearly capacity of 40 million board feet. Logs were transported on the Flathead and Swan Rivers and towed across Flathead Lake to Somers.

Montana's lumber industry of this period was enhanced by the coming of the transcontinental railroads, the boom in the silver and copper mining industries and the consequent population influx. The greatest impetus to the local lumbering industry was the Great Northern Railroad, which began service to the Northern Flathead Valley in 1872.

In the Bigfork area the most extensive logging was done between 1905 and 1910. The logs were skidded to the Swan River Bank during the winter and floated down during spring and early summer high water.

The proposed subdivision is in an area which was burned in 1910. The fire apparently didn't seriously damage the larger trees because from 1930 to 1940 the area was selectively logged.

Except for lumbering and sawmill activity, the only local industry recorded was a small cheese factory located 1/2 mile north of the present Echo Lake store. A hydroelectric power plant was constructed at Bigfork just outside the study area in 1901. In 1907 this was sold to Northern Idaho and Montana Power Company and a low concrete dam was constructed across the Swan River above the rapids, forming a small lake.

There are no known historically or archaelogically significant sites situated on or near the site of the proposed subdivision, however the historical land use activities of agriculture and logging continue today with increasing trends toward residential and recreational uses.

9-Demands on Environmental Resources of Land, Water, Air and Energy

The greatest resource demand will be placed on the land. Not only will the land uses be changed, but the demands on the land will increase. More intensive use and the absorption of sewage will be two of the major demands placed on the land.

Persons living in the subdivision will depend on groundwater for drinking and use around the home. The proposed subdivision shouldn't pose a threat to the aquifer supply, but the supply could become a concern if the developers realize their long term plans to develop 1,800 acres.

A great demand will be placed on the use of energy if the development becomes primarily a second home development. The use of the homes during the summer will not overshadow the fact that families, in keeping two residences, will more likely consume more energy than families who maintain a single residence.

Air quality might be effected in the early stages of road construction, but should be adequately controlled when the surface is graveled. Trash will be taken to a central disposal area by individual property owners and will not be burnt.

10 & 11-Social Structures & Culteral Uniqueness

While the project area lies within a totally undeveloped area and could possibly develop a social character of its own it should be more realistically considered as an extension of the Bigfork community. Because Bigfork and the immediate lake shore area has a strongly oriented recreational identity it would appear near certain that the proposed development will be in harmony with the existing social structuring.

The arts and crafts have flourished to an unusal degree in the pleasant and tranquil Bigfork environment. Retirement families on small acreages or even smaller "city" lots are common. Until the subdivision acquires a size and scope capable of execting undesirable urban pressures in the existing informal and relaxed local way of life this project should prove to be no threat to those now living in the area.

12-Access to and Quality of Recreational and Wilderness Activities

The subdivision will be in the center of one of the most diverse recreational areas in the nation. In addition to the recreational opportunities offered by the Quarter Circle L.A. Ranch Corporation, property owners will have access to boating, fishing and swimming in Flathead Lake, Swan Lake and Hungry Horse Reservoir. Additionally, recreationalists will be close to the Flathead and Swan Rivers.

Persons who enjoy camping, hiking or picnicking will be near the Bob Marshall Wilderness Area, Jewel Basin and Glacier National Park.

For those who are interested in winter sports, there are thousands of acres of federally owned land for snowmobiling, cross country skiing and snowshoing, and persons who enjoy alpine skiing, the Big Mountain ski resort is 31 miles north of Bigfork.

The impact of adding around 162 persons to the number of persons presently enjoying the variety of recreational opportunities in the upper Flathead Valley will be slight, but if the development is developed to its fullest potential, the impact will be significant.

13-Local and State Tax Base and Tax Revenues

The wood products industry and aluminum plant at Columbia Falls provides a substantial portion of the tax base for Flathead County. Another sector of the economy which provides a good portion of tax revenues is the subdivision of rural land for recreational or second home development. The subdividing of rural land normally changes the taxable valuation from agricultural or timber lands to single family, residential, which results in a much greater tax potential.

According to the State Department of Revenue's latest report, 1974 the state collected $480,580 in 1974 for state taxes. The report also indicated the most recent tax figure for personal property taxes in Flathead County was $649,314 in 1973.

According to the developers, the proposed development site is now assessed as timberland at 42 cents an acre. The value of the land will increase appreciably if the subdivision becomes a reality, but an official in the Flathead County assessor's office said the assessed value of the developed land will depend on the market value of each lot.

The proposed subdivision should not substantially effect the county's tax base.

14-Agricultural or Industrial Production

Historically, agricultural activity in and around the proposed subdivision has been limited to timber production and livestock grazing. As stated in the discussion of vegetation, the developers own enough timberland to possibly manage their property for commercial timber purposes, but this is not their intention.

According to the engineering consultant for the developers, various open spaces and meadows have been used for pasturing horses.

The propsed subdivision will permanently remove the 107-acres from use as pasture or timberland, but should not pose a serious impact to local agricultural or industrial concerns.

The loss of the timberland should not alter the operation of the wood products industries in the upper Flathead Valley area.

15-Human Health

People living in the proposed development will be about 20 miles from a complete medical center in Kalispell. The city is the medical hub for the Upper Flathead Valley, and includes a new hospital, a variety of ambulance services, doctors, dentists and a number of pharmacists.

No medical doctors practice in Bigfork, however there is a chiropractor and two dentists.

According to the Flathead County Health Department residents in the Bigfork area have access to a variety of ambulance services. It is possible for persons needing local emergency medical service to receive helicopter or motor vehicle ambulance service to the Kalispell hospital. For persons requiring medical transportation outside the Flathead Valley area, a fixed wing air ambulance service is available in Kalispell.

The anticipated size of the development should not effect the operation of present ambulance or medical services.

16-Quantity and Distribution of Community and Personal Income

According to the 1970 edition of the "Montana Data Book," the median income for the 10,020 families living in Flathead County in 1969 was $8,567 per family.

In another study, the State Bureau of Economic Analysis categorically listed the major sources of personal income in the county. According to the 1973 figures a total of $107,316,000 was paid to working persons. Private business and industry paid $99,720,000 in salaries. Government agencies accounted for $23,000,000 and agriculture paid workers $3,176,000.

In the area of business and industry, manufacturers spent the most for salaries, $39,096,000. Wholesale and retail trade was second with $19,532.000 and service businesses third, $14,018,000.

Since the proposed subdivision will primarily be a second or retirement home development it is presumed that most of the owners will not be permanent residents and not be employed in Flathead County.

17-Transportation networks and traffic flows

The arterial highway carrying traffic to and from the proposed development is Montana Highway 35. The highway parallels the east shore of Flathead Lake, intersecting with U.S. Highway 93 south of Polson and with U.S. Highway 2 between Kalispell and Columbia Falls.

Traffic along the two-way state highway is busiest during June, July and August, according to an official in the State Department of Highways division office in Kalispell. The spokesman said trucks hauling cherries from east shore orchards to shipping warehouses in Kalispell and tourists account for the heavy summer traffic along the highway.

In a letter to the Areawide Planning Organization, James Keithley, supervisor of the division's construction section, said he and his staff had reviewed the proposed subdivision plan and recommended that:

> ". . . Approaches must be limited with good sight distance for safety and drainage structures provided where warranted. This will require an approach permit which must be applied for at this office and approved before installation."

The first phase of the subdivision should not seriously effect existing traffic flows along Highway 35, however full development of the corporation's property would likely require an indepth study of the impact it might have on the highway, and other highways and roads in the Bigfork area.

18-Quantity and Distribution of Employment

The leading employers in Flathead County are manufacturers, trade businesses, service businesses and federal, state and local governments. Since the proposed subdivision will be a second home or retirement development it shouldn't effect the employment market.

19-Distribution and Density of Population and Housing

The 1970 census figures set Kalispell's population at 10,526 and Bigfork's population at 500. Since then both have shown signs of growth, in terms of new businesses and homes, but it is impossible to say exactly how much each has grown. The entire upper Flathead Vally has attracted a number of new persons, and according to national trend of persons moving from populated areas to less populated areas, this trend should continue. Consequently, it seems safe to say the population in Bigfork and the Bigfork area will continue to grow.

There are no statistics which address the quantity and type of housing in the Bigfork area, but a study by the APO gives an indication of the type and condition of housing in the Flathead County area. This geographic designation does not include: Columbia Falls or the Columbia Falls planning area; the Kalispell or Kalispell planning area, or the Whitefish or Whitefish planning area.

From information complied from the county appraiser's records, the APO found that there were a total of 4,689 dwellings in the county planning area. The 3,243 detached single family homes were classed as follows: substandard, 433; deficient, 1,626, and standard, 1,184. There were 43 multi-family homes classed as substandard and 65 judged to be standard. The report also determined that there were 1,053 mobile homes and 285 seasonal dwellings.

Homes in the proposed development either could be classified as detached single-family homes, or for persons using the dwelling as a second home, a seasonal dwelling.

20-Demands of Government Services

The impact of 54 second or retirement homes in the Bigfork area will not lead to expanding exisiting government services according to Flathead County Sheriff Al Rierson, Bigfork School Superintendent Joe Eslick and Bigfork Volunteer Fire Chief Joe Nelson.

Bigfork is unincorporated, thus it doesn't have a city government or police force. The county sheriff's office provides law enforcement, and presently has a deputy who patrols the Bigfork area. The sheriff said another deputy will soon be hired to help patrol the area. "We've been planning for sometime to add another deputy. I don't think the proposed development will necessitate more help," he said.

Superintendent Eslick said a second home-retirement type of development shouldn't effect school enrollments, and even if some of the occupants with school aged children decided to live there permanently, it probably wouldn't cause much of an impact. He noted that, to his knowledge, the school trustees had never officially discussed the proposed subdivision.

While discussing devlopment around Bigfork, the superintendent said if the hundreds of subdivided lots in the Bigfork area were developed, there would be enormous problems.

The grade school, kindergarten through eighth grade, presently has 350 students, and the high school has about 280 students, Eslick said.

The boundary line for the school district runs five miles west of the Flathead River; extends about nine miles north of Bigfork; runs along the Swan Mountain Range to the east and extends south to the Missoula County line in the Swan Valley and to Yellow Bay in the Flathead Valley.

Since there are no major manufacturers in the district, money to operate the schools comes mostly from property taxes, the superintendent said.

The Bigfork Volunteer Fire Department is responsible for structural fires in the Bigfork area and the State Division of Forestry handles wildland forest fires, according to Chief Nelson. He said he didn't think the proposed development would alter the fire department's present operation.

However, William Wright, northwest area firewarden for the state, said in a letter to the APO, that a subdivision in a forested area increases the potential of forest fires, and suggested the developers:

a) Have an adequate water storage and supply system for fire suppression.

b) Locate fire hydrants at strategic locations throughout the subdivision.

c) To work with the volunteer fire department and the state to insure that equipment installed for subdivision fire protection can be used by both fire protection groups.

21-Industrial and Commercial Activity

There are no major manufacturers in the Bigfork area, but the commercial activity in and around the town seems to be growing. The addition of more people to the area should stimulate business, even if the business is seasonal.

22-Locally adopted Environmental Plans and Goals

The Flathead County Areawide Planning Organization held a public meeting to discuss the proposed subdivision in Bigfork last year, and according to planner Jim Mohn, there was a good turnout. "Most of the 18 persons were concerned about the possible effect the development would have on hunting," he said.

In addition to the public meeting, the East Shore-Swan Planning Advisory Group made the following comments to the APO: ". . . One of our concerns is that the covenants be strictly enforced. We feel that the county should help to enforce them. . ."

". . . The developer meets all of our objectives that pertain to the subdivision with the exception of one, number seven which restricts tracts to not less than 20 acres in highly productive timberland and in winter game range. The area qualifies as good winter game range. This particular subdivision, Ranch Unit 1, which contains 52 (actually 54) lots encompassing 105.7 (107.45) acres violates this objective. However, if we use the ratio of 52 (54) to 2,000 plus acres which is the approximate size of the Averill holdings, it more than satisfies the objective. But it is our understanding that this Unit 1 is the first of four units to be developed. If all four units are relatively the same size, then this means 200 plus residences on the 2,000 plus acres of winter game range. Using the ratio of 200 to 2,000 one can see that our objective would be violated. . ."

After considering the information derived from the planning staff, the public hearing and the East Shore-Swan Planning Advisory Group, the Flathead County Commissioners last July granted preliminary approval to the development based on the following conditions:

1. The water and sewage systems be approved by the State Department of Health and the County Sanitarian.

2. The access approach to Highway 35 be approved by the State Highway Department.

3. The preliminary approval statement apply only to the 107.45 acres reviewed. All further proposals will be reviewed in accordance with HB 666 and must be submitted with a master plan for all areas to be developed.

4. All roads have a 60 foot right-of-way and remain private with the proper easements.

5. No further subdivision of lots

6. Covenants and road easements for each lot be filed and recorded.

7. A variance be obtained for granting a longer cul-de-sac than standards allow.

Since then the County Sanitarian has reviewed the plans and data pertaining to the water and sewage systems and has granted approval.

Primary, Secondary and Cumulative Impacts:

The proposed development will result in building houses in an area which has been principally used for growing trees and recreation, and could add more than 150 persons to the Bigfork community.

Secondary impacts might include greater demands for goods and services, which in terms of the business community would probably be welcomed, but in terms of government services, could raise taxes.

According to a number of sources the proposed subdivision should not alter the current life style of persons living in the Bigfork area, but if a number of similar subdivisions suddenly brought in an influx of residents, permanent or seasonal, a number of social and economic problems might occur.

Potential Growth Inducing or Inhibiting Impacts:

The development will add to the population, but as mentioned, the proposal itself should not pose a significant impact on the current population.

Irreversible and Irretrievable Commitments of Environmental Resources:

The greatest permanent resource commitment will be that of land. The nature of the use will change from growing timber and providing recreational opportunities to housing people.

Hypothetically, it would be possible for the homes to be destroyed and the people to more elsewhere, but the mere mechanics of building a home and furnishing it with the necessities of modern living will permanently alter the character of the land.

The acreage will also be subtracted from the amount of winter game range available to deer and elk. In comparison to the total amount of land now available for winter range, the 107 acres may seem small, however the fact remains the land will be lost.

Small developments taken on an individual basis generally do not prove to be serious threats to wildlife, but the cumulative impact of small developments create a creeping, piecemeal reduction of winter game range.

Economic and Environmental Benefits and Costs:

Economically, the project should bring money into the county by means of housing starts, living costs and taxes.

The value of the land will increase appreciably, providing more tax dollars for the school district and county government.

Local builders will initially benefit from the increase in home building, but over a long period of time local merchants will benefit the most from increased trade--even if most of it is of a seasonal nature.

There are some costs which must be balanced against the benefits. More people means there is the potential for an increase in local and county government services. Yet in this case it appears the development won't be directly responsible for growth in either government or schools.

Many of the environmental costs have already been discussed. These include the loss of winter game range, taking land out of timber production, changing the aesthetic nature of the landscape and reducing recreational opportunities.

The provisions made by the developer to control the integrity of development will benefit the project. The restrictive covenants, it consciencciously followed, should keep degradation of natural resources to a minimum.

Short-Term Costs and Benefits vs. Maintenance and Enhancement of Long-Term Productivity of the Environment:

The developers said it was uneconomical to build community water and sewage systems, thus each homeowner will have to install a septic tank and drainfield and drill a well. In terms of wells, it would be possible for several homeowners to share costs for drilling and maintaining a well.

However, if sewage or water problems occur it might be wise for developer to reconsider building community systems.

A consideration favoring community systems would be if the developers decide to develop all or a portion of the remaining property, community systems would decrease the buyer's costs and reduce the amount of disturbance to the land.

Alternatives:

1) The proposed development could be disapproved.

2) The proposal could be unconditionally approved.

3) The proposed development could be approved on the conditions that:

    a) The developers abide by all State Department of Health and Environmental Sciences and Flathead County Sanitary regulations which pertain to disposal of sewage and solid waste and tests for water purity.

    b) The County Sanitarian approve the individual placement of drainfields.

    c) An access approach to Montana Highway 35 be approved by the State Department of Highways.

    d) The environmental impact of the total development (now encompassing approximately 1,800 acres) will be evaluated when (and if) the next phase of the devlopment is proposed.

Recommendation:

The Subdivision Bureau recommends the third alternative.

References:

A Resource Inventory Method For Land Use Planning In Montana, Montana Department of Natural Resources & Conservation, Dec. 1973.

Averill, Dan, Flathead Lake Lodge, Quarter Circle L.A. Ranches, Inc.

County Business Patterns 1973, U.S. Dept. of Commerce, Social and Economic Statistics Administration, Bureau of Census, 1974.

County Profiles: Flathead County, Dept. of Community Affairs, Division of Research and Information Systems, 1974.

Doyle Enterprises, Inc.

East Shore-Swan Planning Advisory Group.

Eslick, Joe, Superintendent of Big Fork School District.

Flathead County Areawide Planning Office.

Flathead County Health Department.

Flathead County Housing Inventory, Flathead County Areawide Planning Organization, June 1974.

Flathead County Sanitarian.

Form E.S. 91, State Subdivision Bureau, Department of Health & Environmental Sciences.

Hansen, Miller, Geologist for the Montana Bureau of Mines & Geology.

Montana Data Book, 1970 edition.

Nelson, Joe, Chief of Big Fork Volunteer Fire Department.

Rierson, Al, Sheriff of Flathead County.

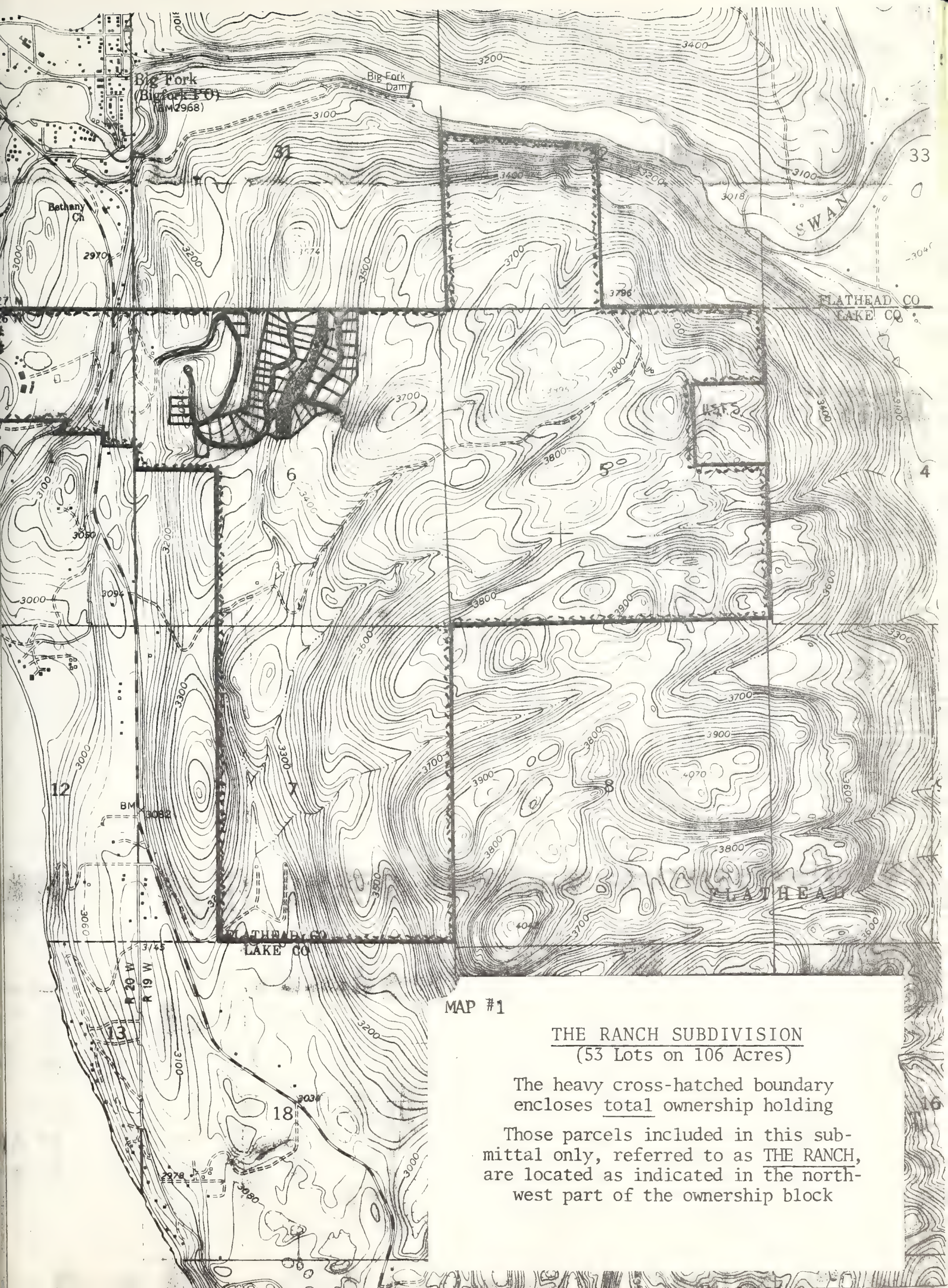
Soil Conservation Service.

State Department of Fish & Game.

State Department of Highways.

Contributors:

Aikin, Wilbur, BS, MS Geological Engineerin
Casne, Edward W., BS, MS Environmental Engineering
Ellerhoff, Tom, BS Sciences Journalism
Keppner, Alfred P., BS, MS Soil Science



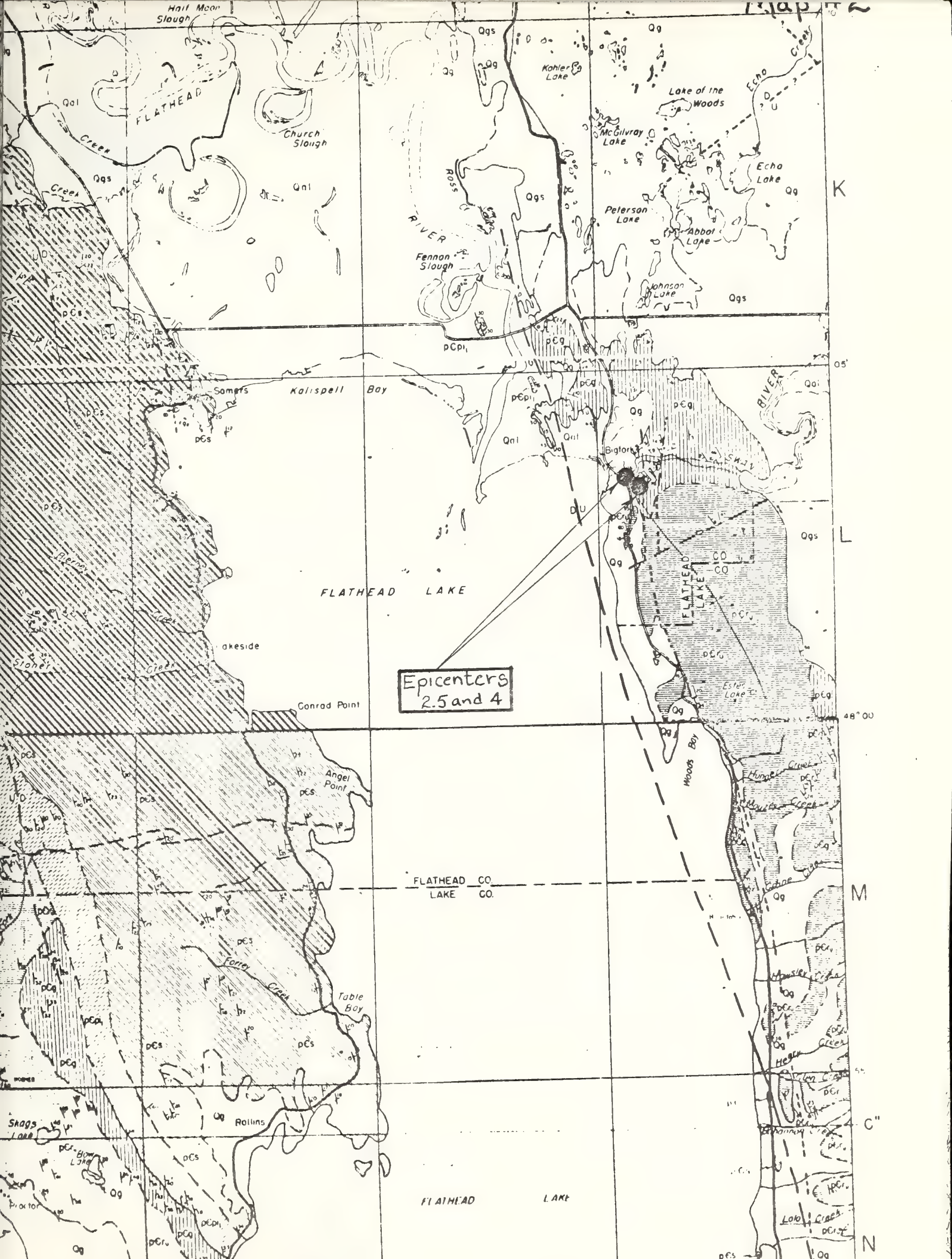
MAP #1

THE RANCH SUBDIVISION
(53 Lots on 106 Acres)

The heavy cross-hatched boundary encloses total ownership holding

Those parcels included in this submittal only, referred to as THE RANCH, are located as indicated in the northwest part of the ownership block

Map #2


Half Moon Slough
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Creek
Church Slough
Qal
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Lake of the Woods
McGilvray Lake
Echo Lake
Echo Creek
Peterson Lake
Abbot Lake
Johnson Lake
Ross
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Fennon Slough
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Somers
Kalispell Bay
Bigfork
SWAN
RIVER
FLATHEAD LAKE
Lakeside
Stoner Creek
Conrad Point
Angel Point
Epicenters 2.5 and 4
FLATHEAD CO.
LAKE CO.
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MAP #2

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STATE DOCUMENTS
JUN 26 1973

State of Montana

State Department of Health
AND ENVIRONMENTAL SCIENCES
P. O. BOX 1031
[redacted]
KALISPELL, MONTANA 59901

JOHN S. ANDERSON, M.D.
EXECUTIVE OFFICER

June 26, 1973

Subject: Reserve Drive Estates, subdivision

Gentlemen:

The enclosed Environmental Impact Statement has been prepared for the proposed Reserve Drive Estates Subdivision, located approximately 1/2 mile west of the Flathead River, and 1/2 mile north of U.S. Highway 2, 3 1/2 miles northeast of Kalispell.

Under Montana law, a person or agency has thirty days to submit comments and/or supply additional information. An additional fifteen days may be granted upon written request to an individual or agency.

Following the statutory period, the project will be reviewed in light of comments received that are applicable under Montana law.

Sincerely,

David Nunnallee

David Nunnallee, P. E.
Public Health Engineer

DN:cs

Enclosure

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

for

Reserve Drive Estates

Flathead County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 to 5005; and the act to control water pollution, Section 69-4801 to 4827, the following statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Reserve Drive Estates Subdivision, located 3 1/2 miles northeast of Kalispell in Flathead County, Montana.

Description of Project and Proposed Action:

The Montana State Department of Health and Environmental Sciences has received plans and specifications and a request for removal of sanitary restrictions for Reserve Drive Estates, a proposed subdivision 3 1/2 miles northeast of Kalispell, Montana. The subdivision consists of 25 lots, occupying about 48 acres exclusive of road easements. The subdivision is approximately 3/4 mile long and 600 feet wide, and lot sizes are fairly large as shown below:

Lot Size (Acres)	Number of Lots
2.2	3
2.0	18
1.3	4
Total 47.8 acres	Total 25 lots
Average 1.9 acres	

The subdivision does not involve any waterfront, although flooding and high groundwater are both factors which have been extensively studied by the consulting engineers for the project.

The project owner is John Stewart of Kalispell, and the project engineer is Dean K. Marquardt, P. E., of Kalispell. Treasure State Realtors is providing the professional real estate service.

Topography:

The proposed subdivision is located on slightly rolling terrain with only 14 feet total difference in relief of the original terrain, the lowest point (elevation 2914) occurring at the southern extremity of the property and the highest point (elevation 2928) at the northern extremity.

Approximately 30% of the subdivision (the North portion) has been cleared for farming purposes, and the remaining 70% is heavily forested with fir and deciduous trees, except where sixty-foot roadways have already been cleared.

Several low areas exist within the subdivision, and these areas are subject to possible water table and flooding problems discussed below.

Soils, Water Table, and Flooding:

According to the Soil Conservation Service's soils report for the Flathead Valley, the area of the proposed subdivision includes three soil types. These soils are described below:

Soil Type	Approximate % of Subdivision	SCS Agricultural Rating	SCS Recommended Restrictions on Septic Tanks
Chamokane Soils	80%	II	Severe restrictions due to flooding, ponding, groundwater pollution
Birch Gravelly Loam	15%	VI	Moderate restrictions due to flooding, ponding, groundwater pollution
Kiwanis Fine Sandy Loam	5%	III	Moderate restrictions due to Seasonal water table and groundwater pollution

The Soil Conservation Service's ratings range from I to VIII with I the most suitable for agricultural use and VIII the least. The majority of the soils in the subdivision are rate II, a high agricultural capability rating, but the soils report recommends that the land is best suited for pasture because of erosion problems in this soil type. All things considered, therefore, the area cannot be termed prime agricultural land.

Investigation holes provided by the engineer indicate that the subsurface strata consist almost entirely of sand and gravel, with some occasional silt to a depth of 10 feet.

The water table has been investigated by the engineers at eleven different locations within the subdivision. The highest water table was found to be more than eight feet below the ground surface. However, several low areas exist where test holes were not placed, and to determine water table levels in such areas, the developer's topographic map was consulted for elevation differences. In this manner it was possible to define areas of unsuitably high or questionable groundwater.

State regulations require that the water table be at least four feet below the bottome of the drainfield. Drainfields normally are constructed at a depth of two feet, and providing necessary slopes for sewage flow another foot normally is lost. Therefore, any location where the seasonal water table is less than seven feet below ground surface is considered questionable or unsuitable for standard septic tank installations.

In this manner, it was determined that nine lots included portions which were unsuitable or very questionable with regard to water table. However, the proposed lots are large, and any lot providing 20,000 square feet of suitable land would meet State Standards even if the remaining acreage were unsuitable. Applying this criteria, only one lot appears to be in serious groundwater problems. Lot #10 appears to be about 3/4 unsuitable, leaving just about the minimum 20,000 square feet of suitable area. Also, lots 11, 13, 17 and 18 have 30 to 50% of their respective areas in suitable groundwater conditions. Locations of septic systems on all of the above lots should be carefully controlled to assure the systems are installed on the highest possible ground.

It should be pointed out that this Department's regulation on groundwater is limited to only a single season's observation, that season being chosen at the developer's discretion. The 1973 season is dryer than normal, and it is probable that in wetter years the ground water conditions on several of the proposed lots would be unsuitable in their entirety.

Flooding has historically been a problem in the proposed subdivision. All of the area was inundated in the 1964 flood, and according to the Corps of Engineer's flood reports, about 40 to 50% of the subdivision is in the 100-year flood plain. The 50-year flood plain is not defined in this area, but it is not likely that any part of the subdivision is located therein. At present, no known governmental agency has express authority over flood plain development. Such development can, however, be expected to eventually affect all residents of the Flathead Valley, as flood plain development will ultimately lead to increased pressure to construct flood control dams on the presently free-flowing North and Middle Forks of the Flathead River.

Water Supply and Sewage Disposal:

Drilled wells for water, and septic tank drainfield sewage disposal systems are to be installed by the individual lot owners.

The soils appear to be amenable to septic tank use provided low areas with high water table are avoided. Percolation data furnished by the engineer averages 1-1/2 minutes per inch, which is a good percolation rate for sewage disposal.

Individual wells for water supply would be entirely acceptable. Because of the scarcity of water wells in the area, the depth to the deep aquifer is not known.

Existing well data for the general area indicates that groundwater is being tapped with shallow wells approximately 15 feet deep. Such shallow systems would not meed this Department's requirements for minimum depth, and because of the high water table, would be susceptible to possible sewage contamination. If this subdivision is to have sanitary restrictions removed by this Department, deep drilled wells would be required to protect public health. Sand points and dug wells would be expressly prohibited in the sanitary restriction removal document.

Solid Waste Disposal:

Refuse handling would be the responsibility of individual lot owners.

Air Pollution:

Development road surfaces would be gravel, minimizing problems with dust. Individual driveways would be the responsibility of the lot owners. Some clearing will doubtless take place, and the resulting slash will be burned, adding to the particulate air pollution in the valley. The total air pollution impact on the valley is expected to be negligible.

Probable Impact on Environment:

The impact of this development is expected to be considerable on the immediate development property. During an inspection on December 1, 1972, a number of deer tracks were observed within the proposed subdivision. Other animals and birds doubtless inhabit this area, and this habitat would be permanently lost or severely limited if the subdivision were fully developed.

The surrounding area would experience some impact associated with an increased population. The area is included in the Stillwater Game Preserve, established by the Montana Fish and Game Department, so presumably there would be no hunting impact on the immediate or surrounding area.

Some 50 acres of land would be permanently committed for the purpose of residential development, to the exclusion of all other uses including farming, timber management and public recreation.

Permanent structures would be limited only by subdivision covenants, or possible future county zoning in the area. Presumably, the lots would be developed only with single family dwelling units.

Aesthetically, the development will have little impact for passers-by, as it is well away from any major highway, and is primarily located within a forested area. Approximately 30% of the development in the north portion would be located in open, cleared fields, readily visible from East Reserve Drive.

Short Term vs. Long Term Uses of the Environment:

Land subdivision is, for all practical purposes, a permanent commitment of land. As mentioned above, the subdivision would be incompatible with any other land-related uses, including farming, timber management, public recreation, etc. Compatibility with game habitat would be very restricted. Essentially, approval of the proposed subdivision would be a long-term commitment of the land for the single purpose of residential development.

Irreversible and Irretrievable Commitments of Resources:

Approval of the proposed subdivision would be, at least politically, an irreversible commitment of some 50 acres of land. Physically, the land could at any time be completely reclaimed to its present condition. Other than the materials to be used in construction of family dwellings, there is little irreversible commitment of any resource other than land to be made or implied by an approval of the development.

Alternatives to the Proposed Action:

Some alternative uses of the 50 acres of land under consideration are as follows:

1. Forest Management.
   The area could be managed to indefinitely sustain a timber yield.

2. Agriculture.
   The area could be cleared and utilized for agricultural purposes, to produce a sustained yield of crops (if tilled) or meat (if used for grazing).

3. Preservation.
   The land could be permanently preserved in its existing condition for sustained public use, perhaps as a park, recreation area or game preserve. There is little to set this area apart as unique, or to encourage preservation except that public woodlands in the Flathead Valley are continually being more restricted, to the detriment of game habitat, and public recreation.

4. Special Conditions or Restrictions.
   The sanitary restrictions could be removed from the development with conditions imposed, to assure safe water supply systems, and to assure construction of sewage systems only on the high portions of the subdivision lots to prevent groundwater pollution. Covenants could also be utilized to impose any number of special restrictions on land use within the subdivision. Enforcement of covenants is, of course, the responsibility of the lot owners within the subdivision.

5. Partial Approval.
   With sufficient reason for doing so, it is possible to remove sanitary restrictions on only part of a subdivision, leaving the restrictions in effect on those lots which have special problems.

Sources of Information:

The following references, along with a field investigation of the area and information supplied by the engineer, provided data for the preparation of this statement.

1. Montana Bureau of Mines & Geology, "Basic Water Data Report No. 3, Kalispell Valley, Montana", 25 pp. & map, (1966).
2. U.S. Dept. of Agriculture, Soil Conservation Service, "Soil Survey, Upper Flathead Valley Area, Montana", 67 pp. + 40 maps. (1960).
3. U.S. Dept. of Agriculture, Soil Conservation Service, "Engineering Properties & Soil Interpretations For Use In Resource Planning & Development; A Supplement to Soil Survey, Upper Flathead Valley Area, Montana", 34 pp. (1970).

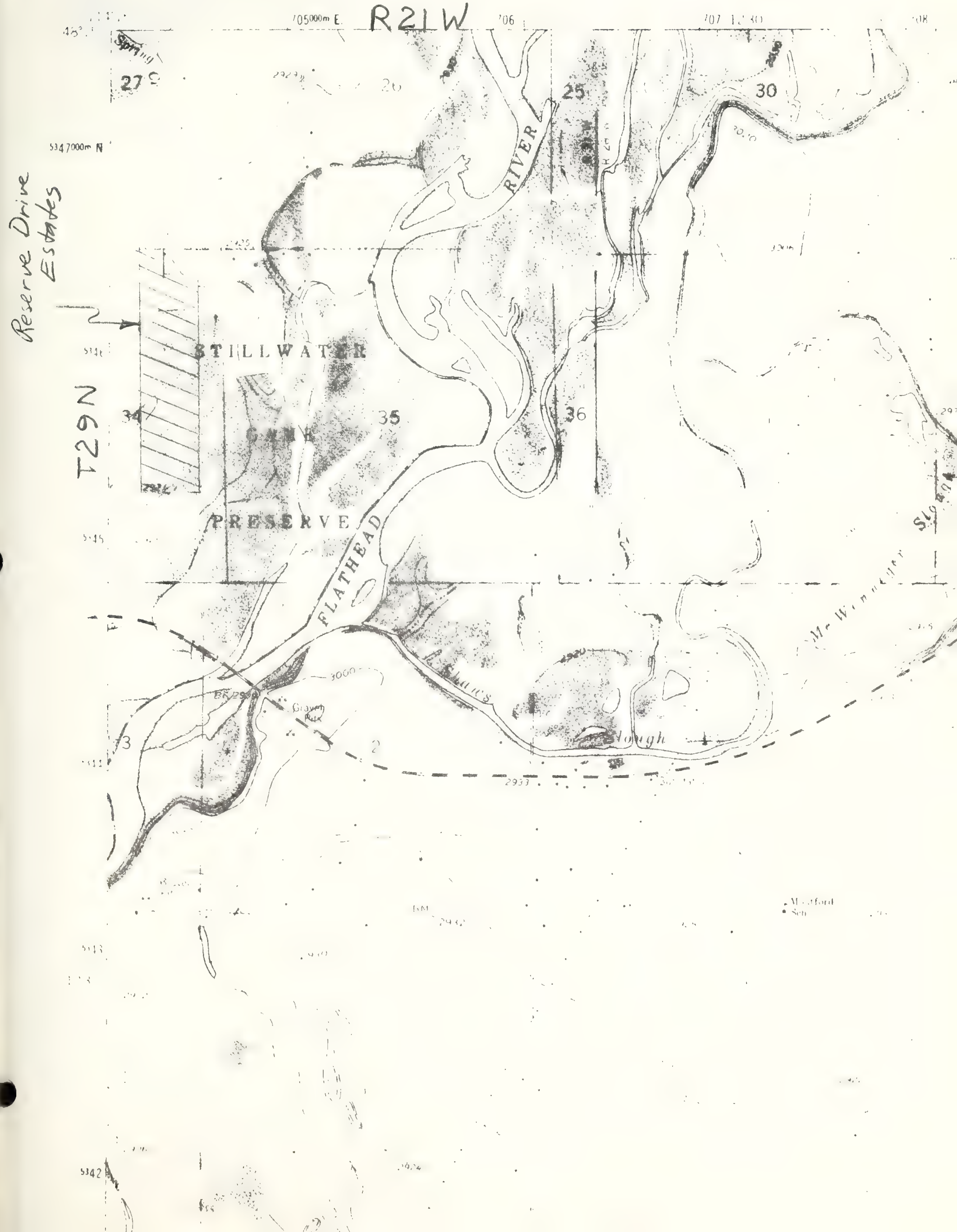
This Statement has been Prepared By:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Washington and Montana.

Copies Sent To:

1. Mr. John Stewart, c/o Tresure State Realtors, 351 N. Main, Kalispell
2. Mr. Fletcher Newby, Montana Environmental Quality Council, Helena
3. Montana Fish and Game Department, Helena
4. Montana State Department of Health & Environmental Sciences, Helena, Attn: Mr. Art Clarkson
5. Montana State Department of Intergovernmental Relations, Division of Planning and Economic Development, Capitol Station, Helena
6. Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
7. Board of County Commissioners, Flathead County, Kalispell, Montana
8. Flathead County Areawide Planning Board, 3 Ford Building, Kalispell
9. Bruce McIntyre, M.D., Flathead County Health Officer, Whitefish
10. Les Espeland, R.S., Flathead County Sanitarian, Kalispell
11. Mr. Wayne Herman, President, Flathead Wildlife, Inc., P.O. Box 4, Kalispell
12. Dr. Lawrence Sonstelie, President, Flathead Valley Community College Ecology Club
13. Polson Outdoors, Inc., P.O. Box 1432, Polson
14. Student Environmental Research Center, Room 212 Venture Center, Missoula
15. Mr. Bob Muth, Montana Wilderness Association, Flathead Chapter, Rt. 4, Kalispell
16. Montana State Library, 930 E. Lyndale Avenue, Helena
17. Dr. John Tibbs, President, Flathead Lakers, Inc., University of Montana Biological Station, Yellow Bay
18. Montana Outdoor Writers Association, c/o Mr. Dale Burke, Exec. Sec., Route 2, Box 144B, Stevensville 59870
19. Mr. Harold Cottet, P.O. Box 265, Kalispell

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



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STATE DOCUMENTS
SEP 18 1973

State of Montana

State Department of Health
AND ENVIRONMENTAL SCIENCES
HELENA, MONTANA

JOHN S. ANDERSON, M.D.
EXECUTIVE OFFICER

Kalispell Regional Office
P.O. Box 1031
Kalispell, MT 59901

September 11, 1973

Subject: Reserve Drive Estates, subdivision

Gentlemen:

The enclosed Final Environmental Impact Statement has been prepared for the proposed Reserve Drive Estates Subdivision, located approximately 1/2 mile west of the Flathead River, and 1/2 mile north of U.S. Highway 2, 3 1/2 miles northeast of Kalispell.

The draft impact statement for this subdivision was circulated on June 26, 1973, and all comments received are incorporated herein.

Sincerely,

David Nunnallee
David A. Nunnallee, P.E.
Public Health Engineer

DAN/kmh
Enclosure

FINAL

ENVIRONMENTAL IMPACT STATEMENT

for

Reserve Drive Estates

Flathead County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 to 5005; and the act to control water pollution, Section 69-4801 to 4827, the following statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Reserve Drive Estates Subdivision, located 3 1/2 miles northeast of Kalispell in Flathead County, Montana.

DESCRIPTION OF PROJECT AND PROPOSED ACTION

The Montana State Department of Health and Environmental Sciences has received plans and specifications and a request for removal of sanitary restrictions for Reserve Drive Estates, a proposed subdivision 3 1/2 miles northeast of Kalispell, Montana. The subdivision consists of 25 lots, occupying about 48 acres exclusive of road easements. The subdivision is approximately 3/4 mile long and 600 feet wide, and lot sizes average nearly 2 acres each.

The subdivision does not involve any waterfront, although flooding and high groundwater are both factors which have been extensively studied by the consulting engineers for the project.

The project owner is John Stewart of Kalispell, and the project engineer is Dean K. Marquardt, P.E., of Kalispell. Treasure State Realtors is providing the professional real estate service.

TOPOGRAPHY

The proposed subdivision is located on slightly rolling terrain with only 14 feet total difference in relief of the original terrain, the lowest point (elevation 2914) occurring at the southern extremity of the property and the highest point (elevation 2928) at the northern extremity.

Approximately 30% of the subdivision (the North portion) has been cleared for farming purposes, and the remaining 70% is heavily forested with fir and deciduous trees, except where sixty-foot roadways have already been cleared.

Several low areas exist within the subdivision, and these areas are subject to possible water table and flooding problems discussed below.

Investigation holes provided by the developer's engineer indicate that the subsurface strata consist almost entirely of sand and gravel, with some occasional silt to a depth of at least 10 feet.

As pointed out in the draft impact statement, a fairly high groundwater table in the development area was extensively surveyed by the engineer for the project. The conclusion reached in the draft statement is that each lot appears to be able to meet State standards on some portion of the lot, but several lots including number 10, 11, 13, 17 and 18 have anywhere from 30% to 75% of their total areas in unsuitable groundwater areas. Responses to the draft impact statement from Flathead Wildlife, Inc. and from the soils scientist of this Department expressed concern over this high groundwater and the subsurface pollution that is likely to occur.

As pointed out in the draft statement, this Department's regulation on groundwater is limited to only a single season's observation, that season being chosen at the developer's discretion. The 1973 season chosen by the developer was dryer than normal, and it is probable that in wetter years the groundwater conditions on several of the proposed lots would be unsuitable in their entirety.

Flooding has historically been a problem in the proposed subdivision. All of the area was inundated in the 1964 flood, and about 40 to 50% of the subdivision is in the 100-year flood plain. The 50-year flood plain is not defined in this area, but it is not likely that any part of the subdivision is located therein. At present, no known governmental agency has express authority over flood plain development. Such development can, however, be expected to eventually affect all residents of the Flathead Valley, as flood plain development will ultimately lead to increased pressure to construct flood control dams on the presently free-flowing North and Middle Forks of the Flathead River. By definition, flood plain development expressly indicates that at some time in the future the sewage disposal facilities will be inundated, causing pollution. These reservations were expressed by the Montana Fish and Game Department and Flathead Wildlife, Inc., in their responses to the draft impact statement. As this Department has no express authority over construction of septic systems on the 100-year flood plain, this points out the need for legislation and/or regulation changes.

WATER SUPPLY AND SEWAGE DISPOSAL

Drilled wells for water, and septic tank drainfield sewage disposal systems are to be installed by the individual lot owners.

The soils appear to be amenable to septic tank use provided low areas with high water table are avoided. Percolation data furnished by the engineer averages 1 - 1/2 minutes per inch, which is a fast percolation rate for sewage disposal.

Individual wells for water supply would be entirely acceptable. Because of the scarcity of water wells in the area, the depth to the deep aquifer is not known.

Existing well data for the general area indicates that groundwater is being tapped with shallow wells approximately 15 feet deep. Such shallow systems would not meet this Department's requirements for minimum depth, and because of the high water table, would be susceptible to possible sewage contamination. If this subdivision is to have sanitary restrictions removed by this Department, deep drilled wells would be required to protect public health. Sand points and dug wells would be expressly prohibited in the sanitary restriction removal document. Connection to the Evergreen water system is being considered by the developer, and is highly recommended.

SOLID WASTE DISPOSAL

Refuse handling would be the responsibility of individual lot owners.

AIR POLLUTION

Development road surfaces would be gravel, minimizing problems with dust. Individual driveways would be the responsibility of the lot owners. Some clearing will doubtless take place, and the resulting slash will be burned, adding to the particulate air pollution in the valley. The total air pollution impact on the valley is expected to be negligible.

PROBABLE IMPACT ON ENVIRONMENT

The impact of this development is expected to be considerable on the immediate development property. During an inspection on December 1, 1972, a number of deer tracks were observed within the proposed subdivision. Other animals and birds doubtless inhabit this area, and this habitat would be permanently lost or severely limited if the subdivision were fully developed.

The Montana Fish and Game Department, in response to the draft environmental impact statement, stated that the area is habitat for deer, grouse, waterfowl and ring-necked pheasants, and "although losses to these species are not serious from this development, the loss from all the present day construction and activities is a serious loss to these wildlife animals".

SHORT TERM vs LONG TERM USES OF THE ENVIRONMENT

Land subdivision is, for all practical purposes, a permanent commitment of land. As mentioned above, the subdivision would be incompatible with any other land-related uses, including farming, timber management, public recreation, etc. Compatibility with game habitat would be very restricted. Essentially, approval of the proposed subdivision would be a long-term commitment of the land for the single purpose of residential development.

IRREVERSIBLE AND IRREVTRIEVABLE COMMITMENTS OF RESOURCES

Approval of the proposed subdivision would be, at least politically, an irreversible commitment of some 50 acres of land. Physically, the land could at any time be completely reclaimed to its present condition. Other than the materials to be used in construction of family dwellings, there is little irreversible commitment of any resource other than land to be made or implied by an approval of the development.

ALTERNATIVES TO THE PROPOSED ACTION

Some alternative uses of the 50 acres of land under consideration are as follows:

1. Forest Management.
   The area could be managed to indefinitely sustain a timber yield.

2. Agriculture.
   The area could be cleared and utilized for agricultural purposes, to produce a sustained yield of crops (if tilled) or meat (if used for grazing).

3. Preservation.
   The land could be permanently preserved in its existing condition for sustained public use, perhaps as a park, recreation area or game preserve. There is little to set this area apart as unique, or to encourage preservation except that public woodlands in the Flathead Valley are continually being more restricted, to the detriment of game habitat, and public recreation.

4. Special Conditions or Restrictions.
   The sanitary restrictions could be removed from the development with conditions imposed, to assure safe water supply systems, and to assure construction of sewage systems only on the high portions of the subdvision lots to prevent groundwater pollution. Covenants could also be utilized to impose any number of special restrictions on land use within the subdivision. Enforcement of covenants is, of course, the responsibility of the lot owners within the subdivision.

5. Partial Approval.
   With sufficient reason for doing so, it is possible to remove sanitary restrictions on only part of a subdivision, leaving the restrictions in effect on those lots which have special problems.

RECOMMENDATIONS

A considerable portion of this proposed subdivision is located on the 100-year floodplain, and while this Department considers construction on such a floodplain to be poor planning and undesirable from the standpoint of water pollution, State Health Department authority is expressly limited to the 50-year flood plain, which is not defined in this area.

Delay of development for the purpose of groundwater examination, in the opinion of this Department's attorney, is limited to no more than one calendar year. While high groundwater in a wetter year than 1973 might preclude sewage drainfields on some of the proposed lots, it has been demonstrated that each lot, this year, has a possible drainfield location which would comply with State standards.

In view of the above considerations, this office has no alternative to recommending approval of the Reserve Drive Estates subdivision in its entirety.

SOURCES OF INFORMATION

The following references, along with a field investigation of the area and information supplied by the engineer, provided data for the preparation of this statement.

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4. Written responses to draft impact statement, attached hereto.

THIS STATEMENT HAS BEEN PREPARED BY:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Washington and Montana.

COPIES SENT TO:

1. Mr. John Stewart, c/o Treasure State Realtors, 351 N. Main, Kalispell
2. Mr. Fletcher Newby, Montana Environmental Quality Council, Helena'
3. Montana Fish and Game Department, Helena
4. Montana State Dept. of Health & Environmental Sciences, Helena
   Attn: Mr. Art Clarkson
5. Montana State Dept. of Intergovernmental Relations, Division of Planning
   and Economic Development, Capitol Station, Helena
6. Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
7. Board of County Commissioners, Flathead County, Kalispell
8. Flathead County Areawide Planning Organization, 3 Ford Bldg., Kalispell
9. Bruce McIntyre, MD., Flathead County Health Officer, Whitefish

10. Les Espeland, R.S., Flathead County Sanitarian, Kalispell
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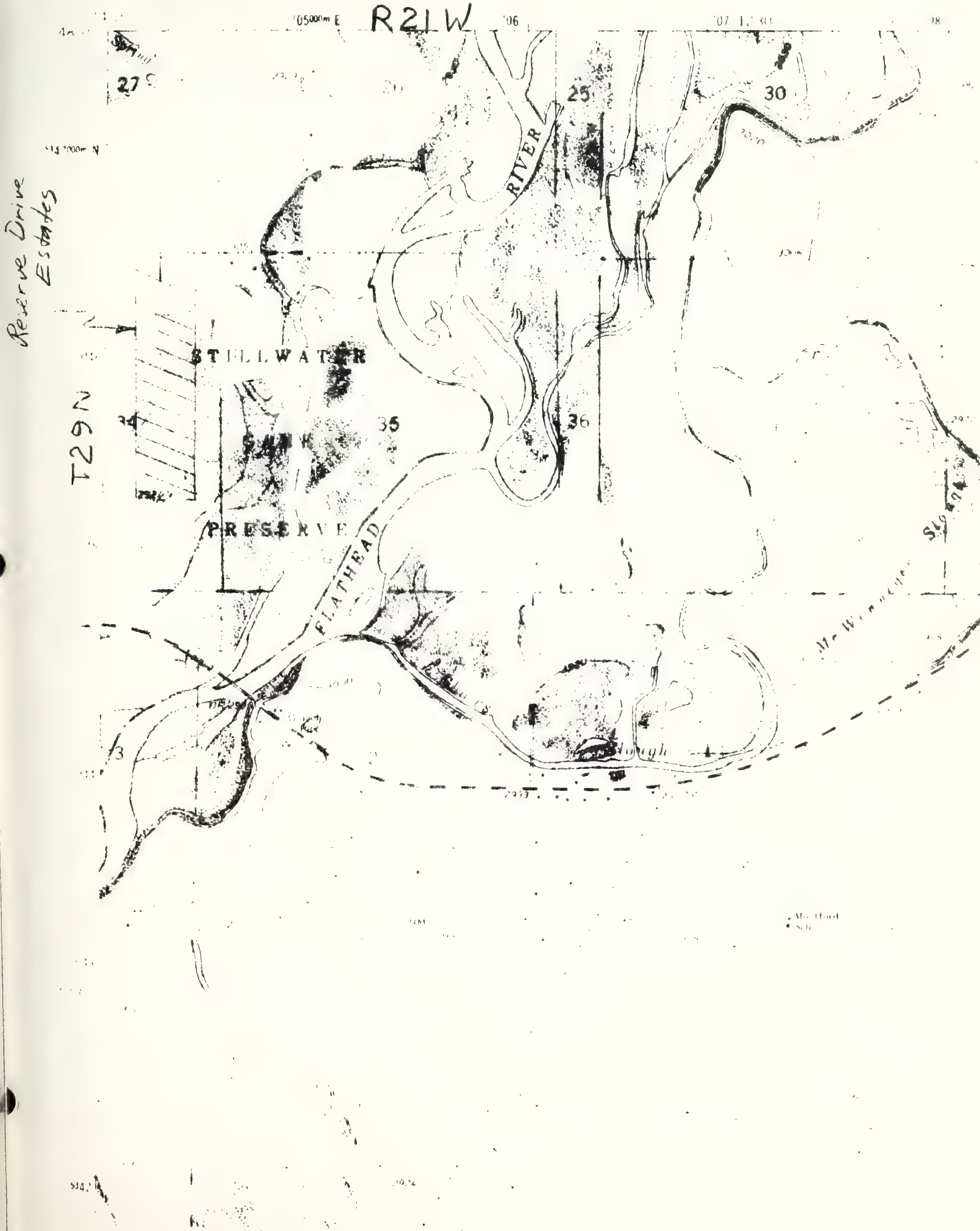
14. Student Environmental Research Center, Room 212 Venture Center, Missoula
15. Mr. Bob Muth, Montana Wilderness Association, Flathead Chapter, Rt. 4, Kalispell
16. Montana State Library, 930 E. Lyndale, Helena
17. Mr. John Cochrane, President, Flathead Lakers, Inc., Box 447, Big Arm 59910
18. Montana Outdoor Writers Association, c/o Mr. Dale Burke, Exec. Sec., Rt. 2, Box 144B, Stevensville
19. Mr. Harold Cottet, Box 265, Kalispell
20. Mr. Dean Marquardt, P.E., 809 1st Ave. E., Kalispell

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



June 27, 1973

RECEIVED

JUN 28 1973

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
KALISPELL REGIONAL OFFICE

Mr. David Nunnallee, P.E.
Public Health Engineer
Department of Health and Environmental Sciences
P. O. Box 1031
Kalispell, Montana 59901

Dear Mr. Nunnallee:

This will acknowledge receipt of the Draft Environmental Statement for the proposed Reserve Drive Estates Subdivision located 3½ miles northeast of Kalispell in Flathead County, Montana.

We will accept this statement pending any further expression of public interest.

Sincerely yours,

FLETCHER E. NEWBY
Executive Director

By Loren L. Bahls
Loren L. Bahls, Ph.D.
Staff Ecologist

FEN/LLB/cjb

cc: Dr. John S. Anderson
Mr. Dan Vichorek

Office Memorandum • **MONTANA STATE DEPARTMENT OF HEALTH**

TO : Dave Nunnallee **DATE:** July 10, 1973

a k

FROM : Al Keppner, Soils Scientist, Water Quality Bureau

SUBJECT : Reserve Drive Estates Subdivision, Flathead County
Environmental Impact Statement of June 26, 1973

Removing sanitary restrictions will create problems in the future for buyers of these lots. With the groundwater and flooding hazards, each lot should be considered separately.

The flooding hazard will result in any future residents of this flood plain putting pressure on the federal and state authorities for flood protection at public expense. This would include levees and up-stream dams.

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

Helena, Montana 59601

July 20, 1973

Mr. David Nunnallee
Department of Health and Environmental Sciences
P. O. Box 1031
Kalispell, Montana 59901

Dear Mr. Nunnallee:

As requested in your letter of June 26, our regional office has reviewed the proposed Reserve Drive Estates subdivision northeast of Kalispell. Attached is a memo prepared by our regional office following that review.

You will note there is reason for concern regarding the continued losses of wildlife habitat and the location of the subdivision in relation to floods of record.

We hope this information will be of use to you.

Sincerely,

Jim Posewitz

James A. Posewitz, Administrator
Environment and Information Division

JAP/sd
Enc

cc: Fletcher Newby
Dan Vichorek
Otis Robbins
Chuck Parrett

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

RECEIVED
JUL 19 1973
ENVIRON. RESOURCES

Office Memorandum

TO : Wes Woodgerd Attn: Jim Posewitz **DATE**: July 18, 19[illegible]

FROM : Tom Hay By: Otis Robbins

SUBJECT: Environmental Impact Statement --- Reserve Drive Estates Subdivision

This subdivision is located east of Kalispell near Flathead River. This is an area of intensive construction and development. It is located near the flood plain zone and was inundated during the 1964 flood.

Wildlife in the area includes deer, grouse, waterfowl and ring-necked pheasants. Although losses to these species are not serious from this development, the loss from all the present day construction and activities is a serious loss to these wildlife animals.

Since this area is so close to the river, nutrients from sewage will, no doubt, contribute to the growing nutrient load going into the Flathead system. Absolute care should be taken to prevent this as much as possible.

Otis

Otis Robbins

OR/ea

FLATHEAD WILDLIFE, Inc.

P. O. BOX 4
KALISPELL, MONTANA

DN

July 25, 1973

David Nunnallee, P.E.
Public Health Engineer
P.O. Box 1031,
Kalispell, Mont. 59901

Dear Mr. Nunnallee:

The Environmental Impact Statement for the proposed Reserve Drive Estates Subdivision was reviewed at the July meeting of the board of directors of Flathead Wildlife, Inc.

We believe the location of this subdivision is undesirable for the following reasons:

Nearly half of this proposed subdivision is within the 100-year flood plain, where developments of this nature should be discouraged.

The possibility of ground water pollution and flooding problems are major concerns.

The area is within the Stillwater Game Preserve. The permanent loss of wildlife habitat is another concern of our organization, at a time when wildlife habitat is rapidly disappearing as a result of subdivision activity throughout the valley.

Sincerely,
Wayne E. Herman

Wayne E. Herman, President,
Flathead Wildlife, Inc.

The Wealth Of Our Nation Is In Its Natural Resources
Preserve It By Conservation, Not Conversation

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STATE DOCUMENTS

SEP 20 1973

State of Montana

State Department of Health
AND ENVIRONMENTAL SCIENCES
HELENA, MONTANA

JOHN S. ANDERSON, M.D.
EXECUTIVE OFFICER

Kalispell Regional Office
P.O. Box 1031
Kalispell, MT 59901

September 11, 1973

Subject: Reserve Drive Estates, subdivision

Gentlemen:

The enclosed Final Environmental Impact Statement has been prepared for the proposed Reserve Drive Estates Subdivision, located approximately 1/2 mile west of the Flathead River, and 1/2 mile north of U.S. Highway 2, 3 1/2 miles northeast of Kalispell.

The draft impact statement for this subdivision was circulated on June 26, 1973, and all comments received are incorporated herein.

Sincerely,

David Nunnallee

David A. Nunnallee, P.E.
Public Health Engineer

DAN/kmh
Enclosure

FINAL

ENVIRONMENTAL IMPACT STATEMENT

for

Reserve Drive Estates

Flathead County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 to 5005; and the act to control water pollution, Section 69-4801 to 4827, the following statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Reserve Drive Estates Subdivision, located 3 1/2 miles northeast of Kalispell in Flathead County, Montana.

DESCRIPTION OF PROJECT AND PROPOSED ACTION

The Montana State Department of Health and Environmental Sciences has received plans and specifications and a request for removal of sanitary restrictions for Reserve Drive Estates, a proposed subdivision 3 1/2 miles northeast of Kalispell, Montana. The subdivision consists of 25 lots, occupying about 48 acres exclusive of road easements. The subdivision is approximately 3/4 mile long and 600 feet wide, and lot sizes average nearly 2 acres each.

The subdivision does not involve any waterfront, although flooding and high groundwater are both factors which have been extensively studied by the consulting engineers for the project.

The project owner is John Stewart of Kalispell, and the project engineer is Dean K. Marquardt, P.E., of Kalispell. Treasure State Realtors is providing the professional real estate service.

TOPOGRAPHY

The proposed subdivision is located on slightly rolling terrain with only 14 feet total difference in relief of the original terrain, the lowest point (elevation 2914) occurring at the southern extremity of the property and the highest point (elevation 2928) at the northern extremity.

Approximately 30% of the subdivision (the North portion) has been cleared for farming purposes, and the remaining 70% is heavily forested with fir and deciduous trees, except where sixty-foot roadways have already been cleared.

Several low areas exist within the subdivision, and these areas are subject to possible water table and flooding problems discussed below.

Investigation holes provided by the developer's engineer indicate that the subsurface strata consist almost entirely of sand and gravel, with some occasional silt to a depth of at least 10 feet.

As pointed out in the draft impact statement, a fairly high groundwater table in the development area was extensively surveyed by the engineer for the project. The conclusion reached in the draft statement is that each lot appears to be able to meet State standards on some portion of the lot, but several lots including number 10, 11, 13, 17 and 18 have anywhere from 30% to 75% of their total areas in unsuitable groundwater areas. Responses to the draft impact statement from Flathead Wildlife, Inc. and from the soils scientist of this Department expressed concern over this high groundwater and the subsurface pollution that is likely to occur.

As pointed out in the draft statement, this Department's regulation on groundwater is limited to only a single season's observation, that season being chosen at the developer's discretion. The 1973 season chosen by the developer was dryer than normal, and it is probable that in wetter years the groundwater conditions on several of the proposed lots would be unsuitable in their entirety.

Flooding has historically been a problem in the proposed subdivision. All of the area was inundated in the 1964 flood, and about 40 to 50% of the subdivision is in the 100-year flood plain. The 50-year flood plain is not defined in this area, but it is not likely that any part of the subdivision is located therein. At present, no known governmental agency has express authority over flood plain development. Such development can, however, be expected to eventually affect all residents of the Flathead Valley, as flood plain development will ultimately lead to increased pressure to construct flood control dams on the presently free-flowing North and Middle Forks of the Flathead River. By definition, flood plain development expressly indicates that at some time in the future the sewage disposal facilities will be inundated, causing pollution. These reservations were expressed by the Montana Fish and Game Department and Flathead Wildlife, Inc., in their responses to the draft impact statement. As this Department has no express authority over construction of septic systems on the 100-year flood plain, this points out the need for legislation and/or regulation changes.

WATER SUPPLY AND SEWAGE DISPOSAL

Drilled wells for water, and septic tank drainfield sewage disposal systems are to be installed by the individual lot owners.

The soils appear to be amenable to septic tank use provided low areas with high water table are avoided. Percolation data furnished by the engineer averages 1 - 1/2 minutes per inch, which is a fast percolation rate for sewage disposal.

Individual wells for water supply would be entirely acceptable. Because of the scarcity of water wells in the area, the depth to the deep aquifer is not known.

Existing well data for the general area indicates that groundwater is being tapped with shallow wells approximately 15 feet deep. Such shallow systems would not meet this Department's requirements for minimum depth, and because of the high water table, would be susceptible to possible sewage contamination. If this subdivision is to have sanitary restrictions removed by this Department, deep drilled wells would be required to protect public health. Sand points and dug wells would be expressly prohibited in the sanitary restriction removal document. Connection to the Evergreen water system is being considered by the developer, and is highly recommended.

SOLID WASTE DISPOSAL

Refuse handling would be the responsibility of individual lot owners.

AIR POLLUTION

Development road surfaces would be gravel, minimizing problems with dust. Individual driveways would be the responsibility of the lot owners. Some clearing will doubtless take place, and the resulting slash will be burned, adding to the particulate air pollution in the valley. The total air pollution impact on the valley is expected to be negligible.

PROBABLE IMPACT ON ENVIRONMENT

The impact of this development is expected to be considerable on the immediate development property. During an inspection on December 1, 1972, a number of deer tracks were observed within the proposed subdivision. Other animals and birds doubtless inhabit this area, and this habitat would be permanently lost or severely limited if the subdivision were fully developed.

The Montana Fish and Game Department, in response to the draft environmental impact statement, stated that the area is habitat for deer, grouse, waterfowl and ring-necked pheasants, and "although losses to these species are not serious from this development, the loss from all the present day construction and activities is a serious loss to these wildlife animals".

SHORT TERM vs LONG TERM USES OF THE ENVIRONMENT

Land subdivision is, for all practical purposes, a permanent commitment of land. As mentioned above, the subdivision would be incompatible with any other land-related uses, including farming, timber management, public recreation, etc. Compatibility with game habitat would be very restricted. Essentially, approval of the proposed subdivision would be a long-term commitment of the land for the single purpose of residential development.

IRREVERSIBLE AND IRREVTRIEVABLE COMMITMENTS OF RESOURCES

Approval of the proposed subdivision would be, at least politically, an irreversible commitment of some 50 acres of land. Physically, the land could at any time be completely reclaimed to its present condition. Other than the materials to be used in construction of family dwellings, there is little irreversible commitment of any resource other than land to be made or implied by an approval of the development.

ALTERNATIVES TO THE PROPOSED ACTION

Some alternative uses of the 50 acres of land under consideration are as follows:

1. Forest Management.
   The area could be managed to indefinitely sustain a timber yield.

2. Agriculture.
   The area could be cleared and utilized for agricultural purposes, to produce a sustained yield of crops (if tilled) or meat (if used for grazing).

3. Preservation.
   The land could be permanently preserved in its existing condition for sustained public use, perhaps as a park, recreation area or game preserve. There is little to set this area apart as unique, or to encourage preservation except that public woodlands in the Flathead Valley are continually being more restricted, to the detriment of game habitat, and public recreation.

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5. Partial Approval.
   With sufficient reason for doing so, it is possible to remove sanitary restrictions on only part of a subdivision, leaving the restrictions in effect on those lots which have special problems.

RECOMMENDATIONS

A considerable portion of this proposed subdivision is located on the 100-year floodplain, and while this Department considers construction on such a floodplain to be poor planning and undesirable from the standpoint of water pollution, State Health Department authority is expressly limited to the 50-year flood plain, which is not defined in this area.

Delay of development for the purpose of groundwater examination, in the opinion of this Department's attorney, is limited to no more than one calendar year. While high groundwater in a wetter year than 1973 might preclude sewage drainfields on some of the proposed lots, it has been demonstrated that each lot, this year, has a possible drainfield location which would comply with State standards.

In view of the above considerations, this office has no alternative to recommending approval of the Reserve Drive Estates subdivision in its entirety.

SOURCES OF INFORMATION

The following references, along with a field investigation of the area and information supplied by the engineer, provided data for the preparation of this statement.

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4. Written responses to draft impact statement, attached hereto.

THIS STATEMENT HAS BEEN PREPARED BY:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Washington and Montana.

COPIES SENT TO:

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3. Montana Fish and Game Department, Helena
4. Montana State Dept. of Health & Environmental Sciences, Helena
   Attn: Mr. Art Clarkson
5. Montana State Dept. of Intergovernmental Relations, Division of Planning and Economic Development, Capitol Station, Helena
6. Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
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8. Flathead County Areawide Planning Organization, 3 Ford Bldg., Kalispell
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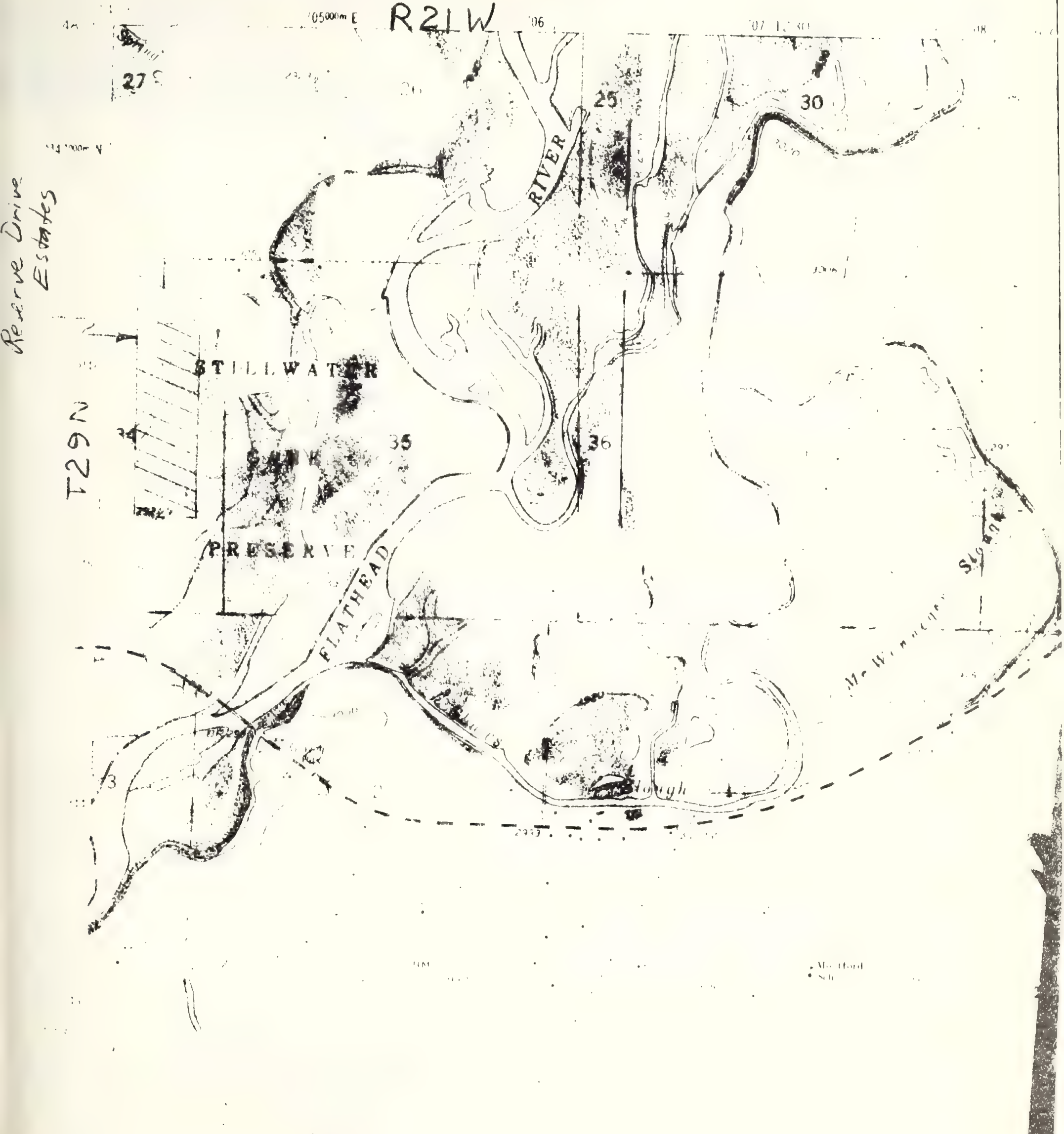
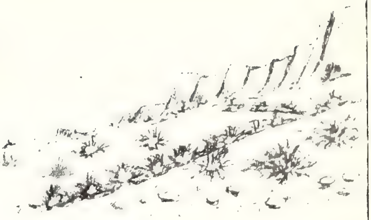
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY





June 27, 1973

RECEIVED
JUN 28 1973
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
KALISPELL REGIONAL OFFICE

Mr. David Nunnallee, P.E.
Public Health Engineer
Department of Health and Environmental
Sciences
P. O. Box 1031
Kalispell, Montana 59901

Dear Mr. Nunnallee:

This will acknowledge receipt of the Draft Environmental Statement for the proposed Reserve Drive Estates Subdivision located 3½ miles northeast of Kalispell in Flathead County, Montana.

We will accept this statement pending any further expression of public interest.

Sincerely yours,

FLETCHER E. NEWBY
Executive Director

By Loren L. Bahls
Loren L. Bahls, Ph.D.
Staff Ecologist

FEN/LLB/cjb

cc: Dr. John S. Anderson
Mr. Dan Vichorek

Office Memorandum • **MONTANA STATE DEPARTMENT OF HEALTH**

en

TO : Dave Nunnallee

DATE: July 10, 1973

a k

FROM : Al Keppner, Soils Scientist, Water Quality Bureau

SUBJECT : Reserve Drive Estates Subdivision, Flathead County
Environmental Impact Statement of June 26, 1973

Removing sanitary restrictions will create problems in the future for buyers of these lots. With the groundwater and flooding hazards, each lot should be considered separately.

The flooding hazard will result in any future residents of this flood plain putting pressure on the federal and state authorities for flood protection at public expense. This would include levees and up-stream dams.

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

Helena, Montana 59601

July 20, 1973

Mr. David Nunnallee
Department of Health and Environmental Sciences
P. O. Box 1031
Kalispell, Montana 59901

Dear Mr. Nunnallee:

As requested in your letter of June 26, our regional office has reviewed the proposed Reserve Drive Estates subdivision northeast of Kalispell. Attached is a memo prepared by our regional office following that review.

You will note there is reason for concern regarding the continued losses of wildlife habitat and the location of the subdivision in relation to floods of record.

We hope this information will be of use to you.

Sincerely,

Jim Posewitz

James A. Posewitz, Administrator
Environment and Information Division

JAP/sd
Enc

cc: Fletcher Newby
Dan Vichorek
Otis Robbins
Chuck Parrett

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

RECEIVED
JUL 19 1973
ENVIRON. RESOURCES

Office Memorandum

TO : Wes Woodgerd Attn: Jim Posewitz **DATE**: July 18, 1973

FROM : Tom Hay By: Otis Robbins

SUBJECT: Environmental Impact Statement --- Reserve Drive Estates Subdivision

This subdivision is located east of Kalispell near Flathead River. This is an area of intensive construction and development. It is located near the flood plain zone and was inundated during the 1964 flood.

Wildlife in the area includes deer, grouse, waterfowl and ring-necked pheasants. Although losses to these species are not serious from this development, the loss from all the present day construction and activities is a serious loss to these wildlife animals.

Since this area is so close to the river, nutrients from sewage will, no doubt, contribute to the growing nutrient load going into the Flathead system. Absolute care should be taken to prevent this as much as possible.

Otis

Otis Robbins

OR/ea

FLATHEAD WILDLIFE, Inc.
P. O. BOX 4
KALISPELL, MONTANA

July 25, 1973

David Nunnallee, P.E.
Public Health Engineer
P.O. Box 1031,
Kalispell, Mont. 59901

Dear Mr. Nunnallee:

The Environmental Impact Statement for the proposed Reserve Drive Estates Subdivision was reviewed at the July meeting of the board of directors of Flathead Wildlife, Inc.

We believe the location of this subdivision is undesirable for the following reasons:

Nearly half of this proposed subdivision is within the 100-year flood plain, where developments of this nature should be discouraged.

The possibility of ground water pollution and flooding problems are major concerns.

The area is within the Stillwater Game Preserve. The permanent loss of wildlife habitat is another concern of our organization, at a time when wildlife habitat is rapidly disappearing as a result of subdivision activity throughout the valley.

Sincerely,
Wayne E. Herman

Wayne E. Herman, President,
Flathead Wildlife, Inc.

The Wealth Of Our Nation Is In Its Natural Resources
Preserve It By Conservation, Not Conversation

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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601
KALISPELL REGIONAL OFFICE-Box 1031-Kalispell, MT 59901
John S. Anderson M.D
DIRECTOR

June 24, 1974

JUN 25 1974

COPIES TO:

Mr. E. Wittlake, Rt. 2 Kalispell
Mr. M. L. Haiges R.L.S. Box 572, Kalispell
Montana Environmental Quality Council, Box 215 Capitol Station, Helena
Montana Fish & Game Dept., Mitchell Bldg. Attn:, Mr. Jim Posewitz, Helena
Montana State Highway Dept., Kalispell Div. 6th Ave. E.N. & Montana, Kalispell
Montana State Dept. of Health & Env. Sciences, Attn: Mr. J. Peterson, Helena
Montana State Dept., Intergovernmental Relations, Div. of Planning & Economic Development, Capitol Station, Helena
Montana State Library 930 E. Lyndale, Helena
Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
Board of County Commissioners, Flathead County Courthouse Annex, Kalispell
Flathead County Areawide Planning Organization 3 Ford Bldg. Kalispell
B. C. McIntyre, M.D., Flathead County Health Officer Box 427 Whitefish
Flathead County Sanitarian, Mr. Les Espeland, R.S. Box 919, Kalispell
Honorable Larry Bjorneby, Mayor, City of Kalispell, City Hall, Kalispell
Mr. Wayne Herman, President, Flathead Wildlife, Inc. Box 4 Kalispell
Dr. Lawrence Sonstelie, President FVCC Ecology Club, Kalispell
Student Environmental Research Center, Room 212 Venture Center, Missoula
Trout Unlimited, 45 2nd St. East, Kalispell
Regional Planning Organization of Western Montana, 133 W. Main, Missoula
FlatheadTomorrow, Ms. Kathy Thompson, Box 173 Bigfork
Mr. Dennis G. Jones, Missoulian Correspondent, Box 287, Polson
Mr. E. O. Mellem, Rt. 2 Kalispell
Mrs. D. Gibson, Clerk, Batavia School District 26 Rt. 2 Kalispell

Gentlemen:

The enclosed Draft Environmental Impact Statement has been prepared for the Rocky Ridge Trailer Court and Campground, west of Kalispell in Flathead County, Montana.

Under Montana Law, a person or agency has 30 days to submit comments and supply new supplementary information. An additional 15 days may be granted upon specific request to an individual or agency. Comments received in response to this Draft Statement will be summarized and included in the Final Environmental Impact Statement.

Sincerely,

Wilbur O. Aikin, P.E.
Public Health Engineer
Environmental Sciences Division

WOA:jh

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

A DRAFT ENVIRONMENTAL IMPACT STATEMENT

FOR

THE ROCKY RIDGE TRAILER COURT & CAMPGROUND

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling the licensing of trailer courts, Secion 69-5602; and the act to control water pollution, Section 69-4801 to 4827, the following statement is prepared by the State Department of Health and Environmental Sciences concerning the Rocky Ridge Trailer Court and Campground, west of Kalispell in Flathead County, Montana, for which a submittal has been received requesting a license to operate as an approved trailer park facility and as a campground.

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It should be noted that the proposed project consists of two separate entities under the same ownership. The campground is a K.O.A. franchise occupying that area which borders both the existing highway and the Ashley Creek stream bed. The permanent trailer court will occupy the bench land across the creek to the east of the campground. Please see the enclosed map for area differentiation.

LOCATION AND SIZE

The total master plan consists of 28.4 acres divided into 81 permanent trailer spaces on 12.5 acres; 3.3 acres of roadway, 5.4 acres of park land and 89 travel trailer spaces on 7.2 acres as a K.O.A. campground. The individual mobile home sites will occupy 6750 ft.^{2} of trailer court space.

The 28.4 acres of ground to be so utilized is four miles east of Kalispell on the south side of, and contingent to U. S. Highway 2. The Batavia Rural School is approximately one-half mile to the southwest of the proposed mobile home complex.

ACCESS

Complete access routing is, as yet, an incomplete consideration. As presented, a 24 foot wide access road will turn off of Highway 2 into the campground complex, cross the creek via a proposed 24 foot wide bridge and proceed through the remainder of the K.O.A. zone into the permanent trailer court area. A series of 30 to 36 foot loop roads split off from this main roadway thus providing access to the individual trailer spaces which are laid out throughout the area. Individual trailer lots are laid out in herringbone or rectangular grid blocks.

The question being raised is whether this scheme would prove adequate to protect public safety in an emergency situation whereby ambulances, fire fighting equipment or law enforcement vehicles might be required to enter the area. The possibility of an alternate or auxiliary route directly into the permanent portion of the facility is being considered.

TOPOGRAPHY

Physically the project area encompasses three topographic zones.

1. Between the highway and the creek (Ashley Creek) the ground slopes gently to the bottom at a 4% grade. Little or no disruption should be experienced siting travel trailer units.

2. Across the bridge between Ashley Creek and trailer court the ground is fairly steep to rolling (a side slope) with grades varying from 7 to 20%. Utilization of this area for any type of travel trailer unit will require considerable cut and fill terracing in order to provide level parking space. This is especially true for that tier of spaces planned nearest the Ashley Creek shoreline.

3. The permanent trailer spaces are sited atop the terrace. Grades vary from 4 to 15%. A portion of this block has been set aside for park land which will not be subjected to disruptive impact. Roads have been kept below 6% and except for the highest tier of trailer spaces the land is reasonably ameanable to shaping without major surface disruption.

   The need for a buffer zone between project areas and peripheral borders has been recognized in the existance of a 15 foot green belt around the entire project area. A 15 to 20 foot green belt along both sides of Ashley Creek has also been defined in the plans.

SOILS AND VEGETATION

Soils in the area are reasonably uniform; either stream laid alluvium or stony loam of glacial origin.

a. Along Ashley Creek the subsurface is poorly drained alluvium, primarily silty clayey loams irregularly banded with sands and/or organic-rich strata. Springs sometimes can and do occur in such an environment, however none are known to exist in this area at this time. Terracing, road building, excavating could create real problems for the developer if, once begun, the construction phase taps into any small ribbon aquifers which have not been identified at this time.

   Percolation rates are high; however, it is the developers intention to utilize the old railroad bed which traverses the property alongside the highway for the ultimate disposal of sanitary sewage from the comfort station. This approach has been used in other places with good success, however, it is, at this time, unknown whether this long wide road grade remnant will be capable of receiving the volumes possible from a campground project as large as this.

b. Above Ashley Creek, on the terrace to be used for individual mobile homes the septic systems will be discharging into a loam or stony loam (with clay) which varies with the slope as to ability to accept effluents (moderate or severe). Since slopes are moderately high much of the land is in the severe catagory, a conclusion which has been reinforced by the seven percolation tests made in the area. Percolation rates and sewage disposal systems will be designed according to a 1 inch in 30 minutes rate (equivalent to an applied volume of 0.92 gallons per square foot per day), a factor which could lead to sizeable absorption fields.

Vegetation is mostly native grass with minor cultivation and/or deciduous trees with shrubs along the creek. Much thinning along the creek has been completed in the last two years. It is the developers intention to leave that which remains for stream bank stabilization. In terms of agricultural capability 15% of the 28 acres in in Class II with the remaining 85% either Class V or VI.

WATER QUALITY PLANNING CONCEPTS

Water Supply: The domestic water supply will be provided from subsurface sources. Two drilled wells are to be used, one of which has been completed to a depth of approximately 125 feet and a yield in the 70 gpm range. Storage and distribution system details have not been completed, however it appears that the proposed method is entirely feasible pending completion of engineering details.

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This is the first major development of this type in the area west of Kalispell. Presumably it could be considered a precedent making project. As such, it will provide a new series of impacts, the most serious of which would be:

1. Aesthetic, since much of the area is visible from Highway 2 and from the homes in the surrounding area.

2. Educational, inasmuch as the local school district will be required to accept children (grades 1 thru 8) from the permanent trailer court residences. This factor would probably not become serious until the park achieved 75 to 90% occupancy.

3. Degredation of surface water of Ashley Creek and/or of the existing ground water table. This could become serious during times of spring runoff or if possible subsurface spring areas are disturbed.

4. Air Pollution, unless during the construction process the disturbed areas are not stabliized with soil cover.

5. Public service oriented in terms of fire protection, law enforcement, telephone service and traffic safety.

On the positive impact side the developer has estimated that the total increased assessed valuation of all land and structures to be $24,624. 00 at 90% occupancy. Nor does the project seriously effect game range or fisheries or take valuable farm land out of production. It would also expand the demand for goods and services for the Kalispell economic base.

ALTERNATIVES

The project has not yet had preliminary hearing with acceptance and/or rejection and/or conditional approval recommended by the Planning Board. The range of alternatives remaining include:

1. Rejection, for cause, of the entire project concept.

2. Acceptance as described, pending completion of sewer and water plans that are consistant with the needed facilities and soil capabilities.

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LONG TERM vs. SHORT TERM USAGES AND THE COMMITMENT OF RESOURCES

Marginal ranch land usage as opposed to considerably more dense commitment to human inhabitation and usage for 28 acres.

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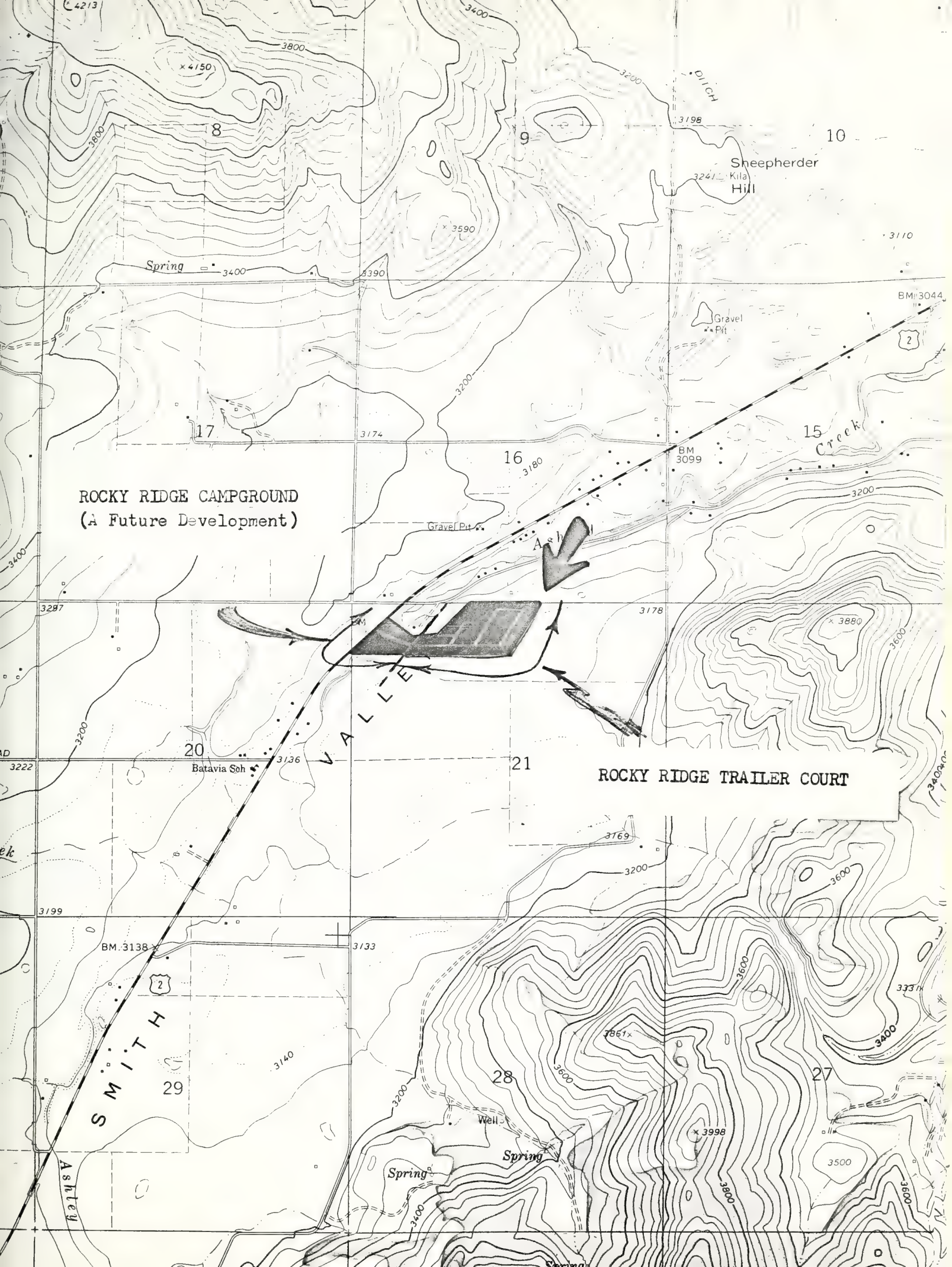
This Division Action is Considered to be SIGNIFICANT.

A final impact statement will be issued following due administrative review and action by the local planning agencies and the completion of plans and specification with within the jurisdiction of the State Department of Health and Environmental Sciences.

Information contained in this review statement was provided from plans submitted by Mr. M. L. Haiges, RLS of Kalispell, Montana on behalf of Mr. E. Wittlake, Kalispell, Montana. Campground layout is by K.O.A. Campground, Billings, MT. Additional significant information was provided by Billmayer's, Inc. a licensed well drilling firm and from the files of the Flathead County Areawide Planning Organization.


ROCKY RIDGE CAMPGROUND
(A Future Development)
ROCKY RIDGE TRAILER COURT
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Kila
SMITH VALLEY
Ashley Creek
Batavia Sch
Gravel Pit
Spring
Well
Ditch
BM 3044
BM 3099
BM 3138
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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601
KALISPELL REGIONAL OFFICE-Box 1031-Kalispell, MT 59901
John S. Anderson M.D
DIRECTOR

June 24, 1974

COPIES TO:

Mr. E. Wittlake, Rt. 2 Kalispell
Mr. M. L. Haiges R.L.S. Box 572, Kalispell
Montana Environmental Quality Council, Box 215 Capitol Station, Helena
Montana Fish & Game Dept., Mitchell Bldg. Attn:, Mr. Jim Posewitz, Helena
Montana State Highway Dept., Kalispell Div. 6th Ave. E.N. & Montana, Kalispell
Montana State Dept. of Health & Env. Sciences, Attn: Mr. J. Peterson, Helena
Montana State Dept., Intergovernmental Relations, Div. of Planning & Economic Development, Capitol Station, Helena
Montana State Library 930 E. Lyndale, Helena
Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
Board of County Commissioners, Flathead County Courthouse Annex, Kalispell
Flathead County Areawide Planning Organization 3 Ford Bldg. Kalispell
B. C. McIntyre, M.D., Flathead County Health Officer Box 427 Whitefish
Flathead County Sanitarian, Mr. Les Espeland, R.S. Box 919, Kalispell
Honorable Larry Bjorneby, Mayor, City of Kalispell, City Hall, Kalispell
Mr. Wayne Herman, President, Flathead Wildlife, Inc. Box 4 Kalispell
Dr. Lawrence Sonstelie, President FVCC Ecology Club, Kalispell
Student Environmental Research Center, Room 212 Venture Center, Missoula
Trout Unlimited, 45 2nd St. East, Kalispell
Regional Planning Organization of Western Montana, 133 W. Main, Missoula
FlatheadTomorrow, Ms. Kathy Thompson, Box 173 Bigfork
Mr. Dennis G. Jones, Missoulian Correspondent, Box 287, Polson
Mr. E. O. Mellem, Rt. 2 Kalispell
Mrs. D. Gibson, Clerk, Batavia School District 26 Rt. 2 Kalispell

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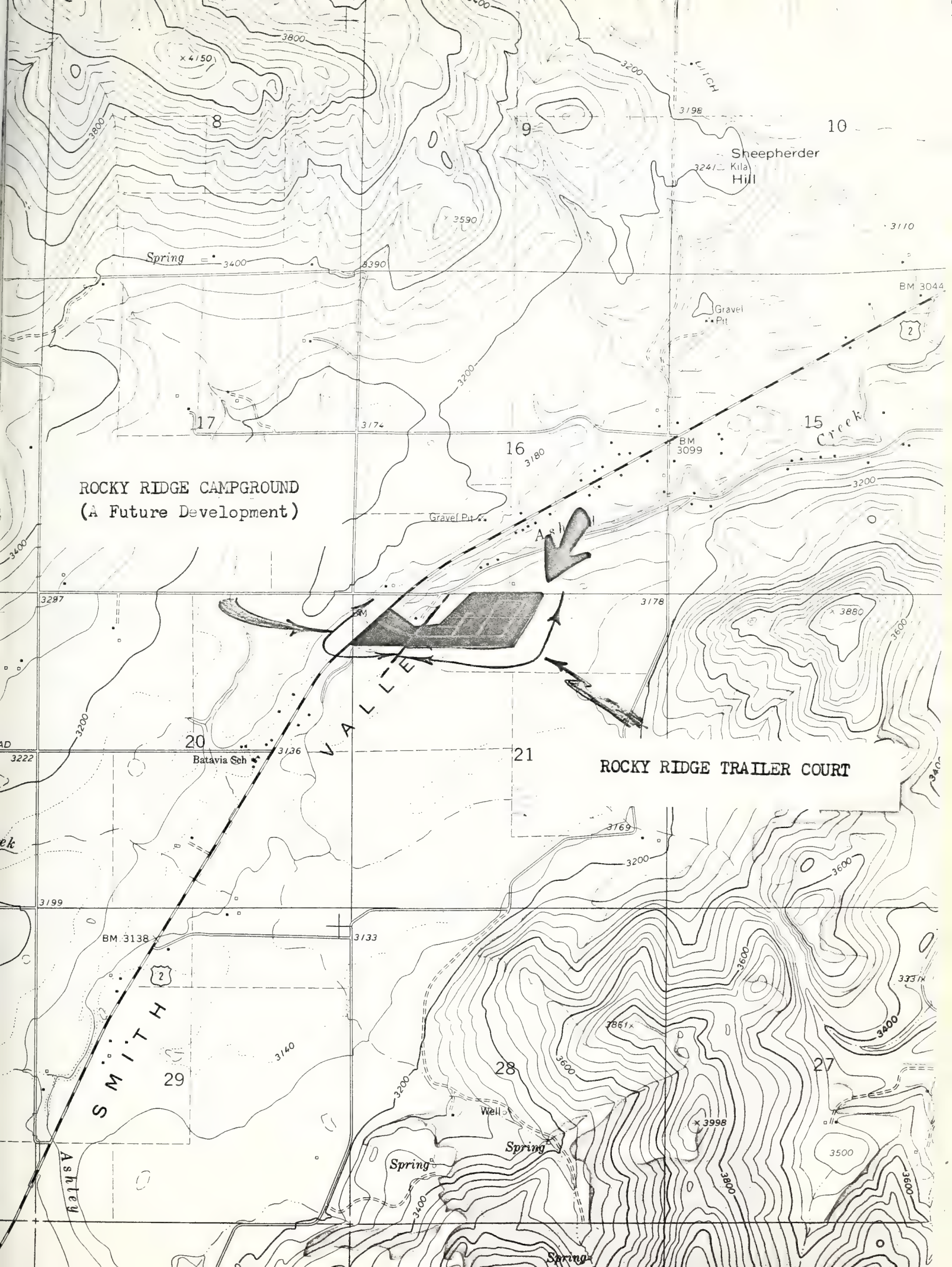

ROCKY RIDGE CAMPGROUND
(A Future Development)

ROCKY RIDGE TRAILER COURT

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DEPARTMENT of NATURAL RESOURCES
LIBRARY

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

[redacted]

June 26, 1974

Honorable Thomas Judge, Governor, State of Montana, Helena
Don Brelsford, Brelsford & Associates, P. O. Box 1252, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Morrison-Maierle, Inc., 910 Helena Avenue, Bozeman
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
Department of Highways, Helena
Ronald Schleyer, Lee State Bureau, 317 Allen, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North Bozeman Avenue, Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13 Avenue, Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard C. Ritter, Box 1170, Bozeman
James Posewitz, Department of Fish and Game, Helena
Gallatin National Forest, Federal Building, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, University of Montana, Missoula
Montana State Library, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Ed Mohler, The Gallatin County Tribune, 201 Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, Larry Uman, University of Montana, Missoula
Gallatin Canyon Study Team, Montana State University, Bozeman
Beaver Creek South, Inc., 24 South Willson, Bozeman
Consumer Advocate, Governor's Office, Helena

[redacted]

Rick Applegate, Box 931, Bozeman
Joe Sabol, Attorney, 27 North Tracy, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman

Gentlemen:

This final environmental impact statement for Beaver Creek South, a proposed subdivision in Gallatin County, is submitted for your consideration pursuant to the Montana Environmental Policy Act.

If you have any questions or comments, please let us know.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Dan Vichorek
Terry Carmody

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

June 26, 1974
E.S. 74/85

A Final Environmental Impact Statement
for
BEAVER CREEK SOUTH,
a proposed subdivision in Gallatin County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 69-4827, the final environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning the proposed Beaver Creek South subdivision in Gallatin Canyon, for which a submittal has been received requesting subdivision plat approval.

Location

This project is located approximately seven miles south of the Big Sky of Montana Meadow Village in the canyon of the West Gallatin River. It is situated in the SE 1/4 of Section 17, Township 7 South, Range 4 East, MPM. Beaver Creek South, Inc., a Montana corporation, intends to divide approximately 95 acres into 72 lots for single-family and multi-family residences with a maximum of 7 1/2 acres along U. S. Highway 191 reserved for a neighborhood commercial area. Beaver Creek crosses a portion of the property for about a quarter of a mile along the north side. The right-of-way of U. S. Highway 191 forms the eastern boundary.

A draft environmental impact statement was prepared and circulated for the proposed Beaver Creek South subdivision on the 8th day of April, 1974. A 15-day extension to the mandatory 30-day period for accepting comments and questions was requested by the State Department of Natural Resources and Conservation. This extension was granted in compliance with the Montana Environmental Policy Act. Copies of the draft statement, along with a plat and various exhibits are available for public inspection in the Helena office of the Water Quality Bureau.

Response to the draft environmental statement was received from the State Environmental Quality Council, State Department of Highways, Gallatin Sportsmen's Association, U. S. Forest Service, State Department of Natural Resources and Conservation, the Northern Rockies Action Group, Inc., and Dorothy Bradley Applegate.

The Environmental Quality Council offered the following comments:

> *The following comments on your department's EIS for Beaver Creek South subdivision in Gallatin County are offered to assist your agency in refining its EIS process, and, hopefully, to improve the quality of the proposed subdivision.*
>
> *Pages 1 and 2. If the proposed commercial area is intended to cater to neighborhood residents, i.e., residents of the proposed subdivision, why will it not be centrally located rather than along the edge of the subdivision on U. S. 191? Although the highway location may attract more customers, it would be less convenient to residents of the subdivision and would sacrifice some of the aesthetic qualities of U. S. 191 as a scenic highway.*
>
> *Page 7. Careful management is necessary for successful operation of any land disposal system. Who will be responsible for operating the sewage treatment units and percolation ponds? The developer? The property owners? The Department of Health and Environmental Sciences? What qualifications will be required of the operator(s)?*
>
> *Page 11. Eventually, vegetation will rot and decompose. Decomposition products may enter the soil and groundwater systems and result in soil plugging and water contamination. It may be advisable to harvest the reed canary grass from time to time to avoid these problems and to maintain a healthy stand of vegetation.*
>
> *Page 14. Compatibility "with the existing quality and architecture in the area", i.e., Big Sky, would probably but the price of a lot and structure in this subdivision beyond the reach of the average employee of Big Sky. A real question is whether this development will satisfy the housing shortage for Big Sky employees, or will cater to the same class of people that are attracted to Big Sky.*
>
> *In conclusion, a map or a scaled-down plat showing the arrangement of lots, park dedication, commercial area, soil types and filter ponds would have been useful in orienting oneself with the proposed subdivision. We wish to complement the Department of Health on its efforts to obtain pertinent information by consulting with appropriate agencies and individuals prior to circulation of the draft EIS.*

> *Thank you for your efforts toward compliance with the Montana Environmental Policy Act.*

The proposed commercial area is intended to cater to residents of the subdivision, and the highway location is designed to attract other customers. However, there would be only one access approach to U. S. Highway 191, and the commercial area would be served from a proposed frontage road.

Any sewage disposal system that requires maintenance needs careful management. The Beaver Creek South Association, which would be comprised of the lot owners, would be responsible for operation of the sewage treatment plant. A qualified operator would have to be hired to maintain the plant. Since this sewage plant would serve ten or more families, the operator would have to pass an examination and be licensed by the Montana Board for Certification of Water and Wastewater Operators.

The vegetation would have to be harvested from any type of surface disposal system, whether it be an infiltration pond or irrigation system.

Many have suggested that the price of a lot and structure may be beyond the reach of most employees of Big Sky, that the development would not solve the housing problems at the resort complex, but cater to the same class of people that are attracted to Big Sky. This may be a valid statement, but has no bearing on the decision whether or not to approve the plat.

It is agreed that a plat would be useful to one reviewing an environmental impact statement. One was not included in the draft environmental impact statement for budgetary reasons.

The State Department of Highways offered the following comments:

> *Reference is made to your draft environmental impact statement dated April 8, 1974 on the subject subdivision. As pointed out in the statement, this subdivision will generate a large amount of traffic that will utilize U. S. 191.*
>
> *After reviewing the subdivision plat in your office we have the following comments.*

1. *Access to U. S. 191 should be limited to one approach at highway station 894 + 51 ± (Twin Antler Drive).*

2. *The approach at this point should be in accordance with the Montana Department of Highways Approach Standards for Montana Highways. The attached page 26 from this manual illustrates what would be an acceptable approach in this particular situation. It is recommended that 55 MPH speed to used for determining "F".*

3. *With the approach at Twin Antler Drive, there are adequate interior roads to serve the subdivision without allowing any other access to U. S. 191. The commercial area should be served from the proposed frontage road adjacent to U. S. 191.*

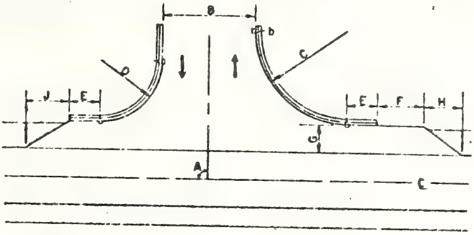
4. *It is requested that future statements include a general location map and a copy of the proposed subdivision plat.*

Thank you for the opportunity to comment on this statement.

It is anticipated that Beaver Creek South Association will comply with the recommendations of the State Department of Highways. A permit is necessary for access to this primary road. It would undoubtedly not be issued if the approach at Antler Drive did not meet specifications.

PUBLIC ACCESS APPROACH
RIGHT TURN LANE & TAPERS

The applicant shall provide right-turn lanes or tapers as part of an approach or driveway system if the department determines that such right-turn lanes or tapers are required to minimize congestion or hazard on the highway caused by vehicles entering the applicant's approach. A right-turn lane shall be preceded by a taper. The design feature dimensions of a right-turn lane and taper shall conform to those shown below.



RIGHT·TURN LANE AND TAPERS					
Design Features		Curbed Highway		Uncurbed Highway	
		Standard	Range	Standard	Range
	E	10 ft	no range	10 ft	no range
Right-turn Lane Length	F	* *		* *	
Right-turn Lane Width	G	12 ft	10 to 15 ft	12 ft	10 to 15 ft
Entering Taper	H	150 ft *	50 to 150 ft	150 ft	50 to 150 ft
Exiting Taper	J	not applicable		50 ft	50 to 150 ft

* If a right-turn lane is used, the Entering Taper standard shall be 50 ft. Without a right-turn lane, the Entering Taper standard shall be 150 ft.

The standard shall be used unless engineering judgment determines that another dimension within the range is more suitable for a particular site or special condition and is approved by the department.

* * TO DETERMINE F		
HIGHWAY SPEED M.P.H.	RIGHT TURN LANE F (FT.)	TAPER (FT.)
25	75	50
	0	150
30	100	50
	0	150
35	125	50
40	175	50
45	225	50
50	275	50
55	325	50
60	400	50
65	475	50
70	550	50

The Gallatin Sportsmen's Association sent in the following response to the draft environmental impact statement:

> *We appreciate the opportunity to comment on the draft environmental impact statement for the proposed Beaver Creek South subdivision in Gallatin County. Our main concern is for wildlife, mainly elk, in the area of the subdivision and adjacent to the subdivision.*
>
> *Wildlife provide a major source of recreation in the Gallatin. Recreation hunting has been a traditional and necessary form of wildlife management for years. For 75 years, Montana Sportsmen have invested their money in management programs for the benefit of wildlife, people and recreation. The Beaver Creek South subdivision is adjacent to the Gallatin Game Range which was acquired for wildlife winter range and hunting in 1951 with sportsmen's money generated by hunting license fees and excise taxes on sporting arms and ammunition.*
>
> *Since 1951 more extensive development has occurred in the area and the newcomers are already complaining about the hunting on the game range and adjoining public land. While we share their concern we must remind them that hunting has been an established use of wildlife on public lands since Montana became a state. We suggest it be mandatory that subdivision developers inform prospective buyers of the fact that hunting on public lands is an established right!*
>
> *Environmental impact statements often convey the feeling that wildlife is not disturbed by development and merely move to another part of the forest and live happily ever after. Such a feeling has no basis in fact and demonstrates a lack of appreciation for wildlife ecology. Most Montana wildlife, especially the big game species, require habitat with wilderness type characteristics. Development in one form or another and the year long people activities associated with development can effectively stop wildlife production in the impacted area. The area of impact is always a much larger area than that occupied by the development alone. Eventually, development will stop the production of the wildlife dependent upon the area and their contribution to the wildlife population will be lost forever.*
>
> *The development of land in wildlife winter range areas, such as Beaver Creek South subdivision, may also result in considerable economic loss to Montana. A recent publication indicates that wildlife in the area of the proposed subdivision could yield between $50 to $100 million in benefits over the next 25 years*[1].

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[1] *1974 The Gallatin Area, Bulletin 344, Gallaton Canyon Study Team, National Science Foundation, Cooperative Extensive Service, Montana State University, Bozeman, Montana*

> *To realize the benefits we will need to protect the wildlife habitat, especially the winter range in the Gallatin. Also, a basic problem must be recognized--wildlife habitat cannot simultaneously be used for both wildlife under natural conditions and for development of subdivisions in or near the wildlife habitat.*
>
> *If Big Sky of Montana, Inc. feels that this subdivision is necessary to their operation, we suggest it be moved into the West Fork area closer to Big Sky where wildlife is already relegated to a minor land use.*
>
> *Montana citizens and sportsmen are concerned about land use control in relation to wildlife range. Unfortunately, concern has not been enough and the legislature "dropped the ball" when it came to seriously considering wildlife in laws dealing with planning and approving subdivisions. However, we hope the State of Montana will show concern, pursuant to the Montana Environmental Policy Act, for wildlife, for recreation and for our investment in wildlife that was made for the benefit of all people.*
>
> *Our Association is not in favor of approving this subdivision because of the adverse impact on wildlife and on public recreation associated with wildlife.*

It is true that the legislature did not pass legislation which would authorize consideration of wildlife habitat in the planning and approving of subdivisions. To not approve the subdivision based on adverse impacts on wildlife and public recreation based on wildlife would certainly precipitate litigation in the courts. This would not be in the long-range interest of wildlife protection. [A probable adverse decision would have profound effects on the decision-making process of future legislatures.] WOULD IT BE ANY WORSE THAN WHAT IS HAPPENING NOW?

The U. S. Forest Service has offered the following comments:

> *This is in response to your Draft Environmental Statement to Beaver Creek South, a proposed subdivision in Gallatin County, Montana.*
>
> *Page 3, 4th Paragraph - Brelsford and Associates have made the most favorable interpretations of J. A. Olsen, et. al. "General Soils Maps and Soils Interpretation" in this and following paragraphs. This paragraph does not say but I infer that the Neighborhood Commercial and Single Family Residences will also be confined to the Bigel-Hobacker Association soils.*

Page 11 and 12 - I echo the State Department of Fish and Game concern and would add that the development will further restrict game movement, particularly elk.

Page 23, 6th Paragraph - Forest Service contact with Montana Power Company does not support the quote of "no problem" in supplying the power needs of Beaver Creek South. John Cromer - Vice President for Electrical Operations of Montana Power at a 12/18/73 meeting with Forest Supervisor Hawkes told us that additional power service for the upper Gallatin Canyon, particularly Big Sky of Montana, would be needed by the fall of 1975. We have since received application for a 161 KV line from Clyde Park to Dillon to meet this and other needs. The developers of Beaver Creek South should be aware that this proposed powerline has not and may not be approved. Development of Beaver Creek should not be carried beyond the present power capacity in the Gallatin Canyon. If in fact all present power capacity is allocated, they should not proceed with their development until additional power is assured.

Page 12, 7th Paragraph - The Gallatin Forest Fire Protection District does not include the land on this proposed subdivision and thus the U. S. Forest Service would not be responsible for wildland fire suppression on this property. Adjacent forested land is, however, within the fire protection district. The proposed subdivision would therefore have to depend on the volunteer fire district for both structural and wildland fire protection.

Page 13, 7th Paragraph - The treatment of the effect on traffic is very incomplete. No date is placed on the ADT's given. I would assume these figures are current. In 1971 the State of Montana Highway Department estimated the present highway will carry 4,500 ADT. At that time they said that in 1969 an average increase of 43 cars per day each year without Big Sky or an ADT in 1980 of 3,181 cars. Big Sky traffic by 1980 was estimated at 600 additional cars per day or 3,781 ADT. Today we have Beaver Creek South with an estimated 900 ADT for a total of 4,681 ADT. An additional figure should be added to this total for subdivisions proposed or approved since 1971 such as proposed Karst #1 and the approved Ken McBride subdivision in the West Fork.

The State of Montana Highway Department should reevaluate their projections for this proposal and total use of this Highway taking into consideration peak periods of use. They appear to have used yearly average figures rather than peak figures and have not adequately considered the effect of other developments when they estimate a 4% increase per year to 1993; nor are they consistent with past projections.

> *Use of Highway 191 in the Gallatin Canyon may be approaching capacity during peak periods of the day now. Motor vehicle accident figures and deaths have increased many fold in the last five years. Beaver Creek South will intensify the problems. The report should accurately quantify these additional traffic problems and weigh their consequences including the consequences of a 4 lane highway.*
>
> *The Beaver Creek development is not adjacent to National Forest land. Effects on National Forest land will be secondary in such forms as increased pressure for the 161 KV powerline, highway 191 improvement, use of National Forest lands for various recreation purposes, etc.*
>
> *A map of this development would have helped greatly in the evaluation process.*

The neighborhood commercial area and some of the single-family residences will be located on the Bigel-Hobacker Association soils. Part of the single-family residences would be constructed on Leavitt-Loeberg and Leavitt-Hanson Associations.

The development of Beaver Creek South would add to the total power needs of the area. This subdivision alone would not create a need for additional power lines but would be a contributing factor should one be deemed necessary.

The Department of Highways reaffirms their comments on the effects the proposed subdivision would have on U. S. Highway 191. Paul R. DeVine, Chief of the Planning and Research Bureau, states that highways are designed to handle the thirtieth peak traffic flow and not the greatest peak traffic period.

The Department of Natural Resources and Conservation offered the following comments:

> *The Department of Natural Resources and Conservation (DNR&C) wishes to comment on the Department of Health and Environmental Sciences' Draft Environmental Impact Statement (EIS) for the proposed Beaver Creek South subdivision in Gallatin County. General and specific comments follow:*
>
> *GENERAL COMMENTS*
>
> *Although it requires more time and effort, some consideration of the comulative impact of the increasing subdivision activity in the Gallatin Canyon is needed. Environmental assessments*

should not be restricted to the impact of a particular subdivision but rather should reflect consideration of those in existence and to the potential for new subdivisions. Limited reviews provide only incremental assessments which may not describe the total situation. Incremental impacts can add up to significant impacts and, therefore, some effort must be given to assessing their cumulative effect. For example, one subdivision might, by itself, remove only an insignificant amount of wildlife habitat; however, several subdivisions in concert may remove a substantial amount of such habitat resulting in a major negative impact on wildlife.

A helpful addition to readers of this statement would be a general locator map together with a map showing the arrangement of development within the subdivision.

SPECIFIC COMMENTS

Page 3, Covenants. The developers assert that development planning and architectural control are to be maintained by a landowners' association and that land-use covenants will reduce the disruptive influence of the proposed subdivision upon the natural environment.

A full discussion of the effectiveness of these control methods should be presented in the Final EIS. Such discussion should center on such questions as:

- *(a) How is the landowners' association created and can it be dissolved?*
- *(b) What enforcement power does the association have?*
- *(c) Can the association modify or absolve the development plan or the restrictive covenants and, if so, by what means or procedures can this happen? and*
- *(d) Generally, are these restrictive covenants adequate to protect the natural environment? If not, where are they weak?*

Page 6, Water Supply. In reference to the water supply, there is no mention of water rights. On page 7 it is stated that, " . . . it is anticipated (emphasis added) that no single well will serve more than eight dwellings or more than 24 persons . . ." This statement does not place a limitation on the withdrawal from each well. In accordance with the Water Use Act, if the yield is 100 gallons per minute or more per well then an application for a beneficial water use permit must be made to the Department of Natural Resources and Conservation, and a permit to appropriate water issued before construction may begin. It should be further noted that the Water Use Act also requires that regardless of the yield from each well, the driller must file a well log report. Within 60 days of completion the appropriator also must file a notice of completion of water development with the Department.

Page 12, Visual Impact. We agree that the visual impact of the proposed development is, to a degree, open to speculation and a matter of personal values. However, the Final EIS should acknowledge the fact that the Gallatin Canyon is widely renowned for its scenic, natural beauty, unmarred by extensive development. The placement of subdivisions within the scenic canyon setting, therefore, has a far more serious visual impact relative to similar developments within or near urbanized areas.

Similar to other impacts, one subdivision adds only an incremental amount of degradation of natural beauty which, taken alone, may be acceptable. Nevertheless, increments often accumulate with the addition of each new development until unacceptable levels or thresholds are reached or surpassed.

The Final EIS should, therefore, consider not only the direct impacts of this one proposal, but also the cumulative impacts of existing and potential subdivisions in a relatively pristine canyon setting.

Page 12, Electric Power. The proposed 200 homes, if of average size, with normal electrical use and heat, could contribute approximately 2.0 to 2.5 megawatts to peak energy demands. Additional energy demand will result from the commercial development and the sewage treatment plant.

Montana Power Company's long-range plans indicate that in the near future, the Company wishes to apply to the DNR&C to construct an additional powerline of 161 kilovolts (KV) near the area of this proposed development. If an application is received, the Department has 600 days thereafter to study the proposal and make its recommendation to the Board of Natural Resources, who, has final authority to deny or approve the application. To date, no application has been received by the Department for this project.

A statement is made in the Draft EIS that there would be "no problem" in supplying the power needs of development, however, it is not clear if there is presently no problem or if there would be "no problem" assuming the proposed 161 KV transmission line were approved and constructed.

Page 13, Police Protection. The final statement should clarify the comment that "the Association may decide to hire its own security agent for added protection, in a similar manner to Big Sky of Montana". A recent news article pointed out that the salary of a deputy sheriff to be stationed at Big Sky will be paid by the public (Gallatin and Madison Counties). From what funding will the salary of Beaver Creek South's security agent be drawn?

Page 13., Property Valuation. Possible data assembled by the Montana State University Gallatin Canyon Study could help ascertain whether property valuations are sufficient to cover the additional costs of government services. A recent reference obtained by the State Library may also help in this regard:

> *Oregon Extension Services*
> *Local Tax Impact of Recreation and Subdivisions: A Case Study*
> *Special Report 365, 1972.*

Page 13, Vehicle Impact. The Department of Highways' comments give the full development level for the subdivision as 174 dwelling units; elsewhere in the Draft the developer affirms that 200 dwelling units will be possible if the subdivision is fully developed. Therefore, the Department of Highways traffic figures may be somewhat understated if based upon 174 units.

It would be useful information if the threshold level were given for that average daily traffic (ADT) which would warrant road widening or the construction of a four-lane highway in the canyon. The Department of Highways projects future traffic in the canyon for 1993 as 3,600 vehicles per day. This figure assumes a 4 percent annual growth in the present traffic volume of 1,240 vehicles per day for an increase to 2,717 vehicles by 1993. The 900 additional trips generated from Beaver Creek South are added to 2,717 giving a total of 3,617. If the 900 figure is added at the beginning of the 4th year rather than at the end of the 20th year, a traffic volume for 1993 is 4,470 rather than 3,600. Using either a figure of 3,600 or 4,470, the carrying capacity estimated by the Department of Highways for the present canyon highway of 4,500 vehicles per day is being approached.[1]

The estimates for 1980 summer ADT prior to the advent of the Beaver Creek South subdivision is 3,781.[2] *If the additional traffic volume from Beaver Creek South of 900 is added to this assumed traffic flow it appears that within 10 years, summer traffic could exceed the present capacity of the highway!*

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[1] *The Murray-McCormick Environmental Group, Gallatin Canyon Final Report, (1972). p. 180*

[2] *Ibid. p. 132.*

Although we are unskilled in estimating future traffic flows, it would seem that some discussion should be given to the adequacy of using a 4 percent annual increase in traffic when it seems possible to estimate the load more exactly from subdivision activity underway or planned such as was done for Beaver Creek South. For example, the Draft EIS for the Cascade Subdivision at Big Sky, September 1973, states that this one subdivision will accommodate 363 single family homes, multiple homesites for 420 families; and that between 950 and 1,000 condominium units would eventually be included.[3] *If Beaver Creek South will increase ADT by 900, it should be possible to estimate the increased ADT from this subdivision as well as provide a seemingly better estimate of future traffic loads.*

Page 14, Statement of Big Sky of Montana, Inc. This statement supports the proposed development on the assumption it will help provide housing for employees of Big Sky and other individuals employed by third parties at Big Sky. Yet, the draft lacks an analysis of this statement and thereby leaves the reader to accept the conclusions as presented. If this statement remains in the final, then the Water Quality Bureau should address its validity.

We have reservations whether the majority of employees at Big Sky and other associated workers could afford the lots or housing in this subdivision. And, if so, what will encourage them to purchase in Beaver Creek South rather than in Big Sky's subdivisions or condominiums? Obviously, Beaver Creek South would have to sell or rent real estate more cheaply, if Big Sky's employees are to prefer Beaver Creek South.

Page 14, Alternatives. Within this section it is noted that:

> *Although there would be adverse environmental effects on wildlife and, to many, a degradation of the aesthetic quality of the area, no legislative mandate is in effect which would give legal justification for refusing to grant subdivision plat approval on these grounds.*

This comment articulates a problem common to a number of agencies which are often obligated by law to approve actions that may have a significant environmental impact. MEPA mandates a broad consideration of all impacts associated with certain actions. Yet, in that it is necessary to operate within legislative guidelines, it is not always possible to avert certain impacts by disallowing an action.

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[3] *Montana Department of Health and Environmental Sciences, Draft Environmental Impact Statement, Cascade Subdivision in Madison County, Sept. 20, 1973. p.1.*

> *The regular occurrence of situations of this nature would suggest that new legislative guidance and direction is appropriate. A determination of the state's capacity to serve the long-term public interest can, in part, evolve from internal deliberations. Among these should be an assessment of the efficacy of given authorities and an examination of the need to propose certain statutory changes. Efforts of this nature on a continuing basis will hopefully enable the state to maintain its resource values and present quality of life.*
>
> *We appreciate the opportunity to comment upon this Draft EIS and are hopeful these comments will be useful in preparing the Final EIS.*

The point is well taken that some consideration is needed of the cumulative impact of increasing subdivision activity in Gallatin Canyon as incremental impacts can add up to significant impacts. This is something that is necessary in all of Montana. The Gallatin Canyon Study Team from Montana State University is addressing this problem. With funds from the National Science Foundation, they are studying the impacts of development on the Gallatin Canyon area. Reports are available to the public.

There are approximately 2,800 acres in the Gallatin Canyon that have a high potential for residential development. Beaver Creek South would occupy 95 acres of this land or a little over 3 percent.

The landowners association would be comprised of the lot owners and is financed by an annual assessment. Enforcement of covenants or restrictions is the responsibility of the association. They may bring an action at law against a lot owner for violations. The restrictive covenants can be modified by an instrument signed by 70 percent of the lot owners.

As with most covenants, enforcement is most difficult. A neighbor is reluctant to take another neighbor into court. Therefore, compliance is usually voluntary. These covenants address such problems as architectural control, hunting prohibition, building size, open space and the like. These could reduce the visual impacts to this widely renowned scenic area, but they would not eliminate the impact.

If Beaver Creek South were to hire a security agent, his salary would be paid by the property owners association through annual assessments.

Whether property valuations would be sufficient to cover additional governmental services has not been determined. The Water Quality Bureau did not make this determination for two reasons:

1. This has no bearing on a decision to be made on the proposed subdivision.

2. The assessed value of property or improvements need to be estimated in order to make some calculations. Other data that would be needed would be the area of the subdivision, number of lots, number of parcels with improvements, number of in-state and out-of-state owners, number of lots occupied year-round, number enrolled in school, number of registered voters, tax rates, school district tax levy, number of children in the district, and the number of taxed lots in the school district. Some of this information is not readily available. However, it can be stated that the same benefit-cost relationship does not continue with increased development of a subdivision. A subdivision may generate more revenue than its service cost at one stage of development but may generate less revenue than its service costs (without a tax increase) at another stage of development.

The Northern Rockies Action Group has made the following statement:

> *I am in receipt of a copy of the draft environmental impact statement prepared on the Beaver Creek South subdivision in Gallatin County. For a variety of reasons, this environmental statement is both premature and incomplete. As I will detail below, the inadequacies of this statement are so substantial that I have no doubt that the best course to follow would be the preparation of a new draft environmental statement when the Department of Health is in fact ready to propose an action or discuss in detail the alternatives available to it.*
>
> *In general, it is not appropriate to include within an environmental impact statement material from individuals who stand to profit a great deal from the approval of the development. At least, the Department of Health should either verify, critique or delete the material submitted by the environmental consultant. In fact, this material represents the bulk of the environmental statement; there is absolutely no indication that the Department of Health has done its own work on this subdivision. And, if as noted in the environmental*

statement, the waste water disposal is still under review by the Water Quality Bureau, there is absolutely no point in preparing an environmental statement for public review at this time. The purpose of an environmental impact statement is to explain in detail an agency's proposed action and to balance environmental and economic costs and benefits for public review. This is not done in the statement under discussion.

In addition, where the Department does engage in its own analysis, the language used is primarily canned. For example, it is reasonable to assume without knowing anything besides the location of this development that the impacts would "undoubtedly fall within the range associated with the residential use of a mountain valley." However, this kind of statement does not come close to satisfying the requirements of the Montana Environmental Policy Act and the guidelines prepared thereunder. A rather rigorous balancing analysis of costs and benefits of residential use af a mountain valley should be undertaken. Absent this kind of analysis, the statement is not in compliance.

The remarks presented by the Department of Fish & Game are heartening, since they are the primary independent comments contained in this environmental statement. However, as noted with the comments submitted by the environmental consultant, the Department should verify, critique or delete the statements submitted even by another state agency. Agency comments are properly included, attached to the draft environmental statement, when the final is circulated. However, where their input is to be used in the preparation of a draft, it should be clearly noted, and the Department should conduct an evaluation of the submitted material. In other words, the purpose of an environmental impact statement goes far beyond merely full disclosure. The Environmental Policy Act was passed to insure that the agency not only disclosed information and information gaps, but also evaluated the available information and presented the public with a balancing of the costs and benefits of the proposed agency action.

The comments above on the material submitted by the environmental consultant apply to the community impact report which was incorporated in this draft impact statement without independent verification. If it has not been ascertained at this time whether the property valuation of the proposed development would be sufficient to pay for the necessary school expansion, then there is no point in preparing an environmental statement at this time. Again, the function of an agency in preparing an environmental impact statement is more than revealing information gaps which could be filled by the agency; absent the completion of this analysis, the statement does not fulfill the requirements.

In the section on alternatives to the proposed development, more evaluation should be supplied. It is not enough merely to point out that there will be adverse environmental effects on wildlife and degradation of the (esthetic) quality of the area. What is the balance of these costs compared with the benefits of the development? Do they outweigh the benefits of the development? If they do, then the Department of Health should not oppose the proposed subdivision since it is not sound public policy. These questions must be addressed in an impact statement, even if, supposing the Department of Health position is correct, there is no explicit legislative mandate to make environmental decisions on other grounds. Regardless of this departmental contention, all agencies are bound to make decisions that are in fact good public policy in all cases.

In the section on long-term impacts of development, there is no way to verify the statement that the proposed development would reduce the pressure for mobile home parks and residential subdivisions. One might have assumed that the pressure for other residential subdivisions could have been curbed by the Big Sky development; obviously, this is not the case. Without supporting evidence, this type of statement should be deleted.

To conclude, this draft environmental statement by the Department of Health is premature and incomplete. I cannot understand why the Department felt it necessary to prepare this impact statement at this stage in the evaluation of the proposed development. The results should be in before the public is troubled with the review of a statement. Hopefully, in the future, the Department of Health will pursue more evaluation before releasing statements to the public. When this is done, the Department might want to consider, in addition to the above objections, the following.

A Montana Power Company official was quoted as stating that it would be no problem in supplying the needs of the anticipated number of residents of the Beaver Creek South subdivision. Does this "no problem" mean that the existing transmission lines are adequate to supply the needs of this development, or does it mean that the power company and thereby the Department of Health are banking on the construction of the proposed 161-kv line from Ennis? A Department of Highways official is quoted saying that the projected volume from the Beaver Creek South and the Big Sky developments would not warrant construction of a 4-lane facility from the area. What volumes of traffic would warrant construction of a 4-lane facility? How many more subdivision units could the Department of Health approve in the Gallatin Canyon without warranting the construction of such a 4-lane road? Further, what are the impacts of the *described 7 1/2 acre neighborhood commercial area at the subdivision?*

How does the Department of Fish & Game statement that tertiary sewage treatment should be required fit with the Department of Health contention that secondary sewage treatment would probably be adequate.

Again, the Department of Health should prepare a new draft environmental impact statement that at least gives the public an opportunity to review in some detail both the costs and the benefits of the proposed departmental action. Unless this is done, the letter and the spirit of the Montana Environmental Policy Act will be circumvented.

Thank you for the opportunity to comment.

Dorothy Bradley has made the following comments:

I am writing to request a rewriting of the draft environmental impact statement for the Beaver Creek South development in Gallatin Canyon.

I make this request because it is inappropriate for the Department to use the environmental assessment of an independent consultant without editing or scrutinizing the work. Furthermore, the department should take special caution in accepting work from a firm which has direct financial interest in the development under study. Federal case law under the National Environmental Policy Act establishes that this is inappropriate.

I also found the EIS to be incomplete.

1. *In spite of a fairly complete discussion on the geology of the area I think more adequate information is needed on the long term water needs. Although producing wells have been drilled, at what rate will the aquifer recharge itself?*

2. *Information was definitely insufficient on the matter of sewage disposal. P. 11 of the EIS states that "the proposed method of wastewater disposal is still under review by the Water Quality Bureau." How is the public supposed to evaluate something on which the agency has made no determination? The EIS would have it appearas a relatively simple matter, saying on P. 14, "when it is determined what pond area and dosing rates of wastewater from the sewage treatment would insure the quality of ground and surface waters, then the proposed development would appear to meet the concept criteria required . . ." This conflicts with*

another agency which states on P. 12 that "unless at least tertiary sewage treatment is planned, it is my feeling that in time water quality degradation will occur in the watercourse in the area even though the seepage ponds are located quite far away from either stream."

Part of the purpose of the EIS is to present to the public information and agency evaluations regarding decisions that are to be made. Information on waste treatment should not be skimped. Agency conflicts should be cleared up or, at least analyzed.

3. The comments on P. 12 and 13 are shallow.

   For example, a Montana Power Company representative is quoted saying that supplying energy for Beaver Creek South residents will be "no problem." No problem for whom? Will that source of energy depend on the proposed 161 kv line from Ennis to Big Sky? If so, it is a problem for those of us who are supporting inclusion of Jack Creek in the Spanish Peaks wilderness proposal. No problem for MPC? I heard this past winter from a MPC lawyer in his presentation to the Environmental Quality Council, that an energy emergency would occur in the summer of '75 if plans for power plants in eastern Montana did not take place rapidly. He was requesting a waiver of the legally required time periods for public review of energy facilities.

   If the problem of energy supply is to (be) mentioned at all it should be discussed seriously and in depth.

4. P. 13 includes comments on Ophir School. I suppose it is possible that Ophir School's growth will coincide with Beaver Creek's. But accommodating 300 new students is not to be treated lightly--especially considering the school had about 10 students a year ago. 300 students cannot help but cause increased growth pains. This subject demands greater attention, as it is part of a much larger question--will the public cost of the development exceed public benefit?

5. I am concerned that part of the justification for Beaver Creek South is the housing needs of its neighbor, Big Sky. Will such reasoning not lead to a proposal for a new housing development to take care of the employees of Beaver Creek?

Again, because of the inadequacies of the EIS, and more importantly, because it contains a suspect and unexamined source of information, it does not comply with MEPA. It should be rewritten and reissued as a draft EIS when the Department has more information and has done more evaluation.

[redacted]

An environmental impact statement can be an extremely useful guide and tool in the decision-making process. To paraphrase Richard D. Klinger, staff counsel for the Environmental Quality Council

> *One of the main purposes of the Environmental Policy Act was to assure a reasoned and balanced judgment about the effects of a project before the project was begun. The EIS process, if indulged as a pre-decision methodology and not as a means of project justification, can yield very helpful and useful results.*

At the time the draft environmental impact statement was circulated, no decision had been reached by the Water Quality Bureau concerning the proposed Beaver Creek South subdivision. If a decision had been reached, an environmental impact statement would have just been a means of justification.

As stated in the draft environmental impact statement

> *Can-Tex Industries' diffused air type sewage treatment units are proposed. BOD and suspended solids should be reduced 80 to 90 percent and fecal coliforms reduced to 200 to 100 milliliters, thus affording the equivalent of secondary treatment. Plans and specifications for these sewage treatment units are available for inspection in the Helena office of the Water Quality Bureau. Wastewater disposal would be through the use of infiltration ponds.*

For wastewater disposal, two 20,000 square foot percolation ponds are proposed. The percolation area will be topsoiled and planted to reed canary grass. In the draft environmental impact statement, evidence was offered that demonstrated the success of this system in several parts of the country. Therefore, the Water Quality Bureau has given serious consideration to the proposed sewage disposal system. A tertiary treatment plant was considered but was deemed impractical for this small of a residential development.

Since percolation ponds have not been used to a great extent in this part of the country, any such system would require monitoring wells to ascertain any effect on groundwater. Two to the east of the ponds and one north of the ponds would be necessary.

Following is a summary of the proposed wastewater collection and treatment system:

	INITIAL		ULTIMATE	
Population	150		700	
Plant Flows				
(a) Average daily flow	15,000 gpd		70,000 gpd	
(b) Peak flow	40 gpm		125 gpm	
Sewage Quality	mg/l	lbs/day	mg/l	lbs/day
(a) Raw sewage BOD	200	26	200	120
(b) Raw sewage SS	250	31	250	145
Design Efficiency - Treatment Plant				
(a) Effluent BOD to percolation ponds	15-25	3	15-25	14
(b) Effluent SS to percolation ponds	20-30	4	20-30	17
Extended Aeration Plant Components				
(a) Design flow	15,000 gpd		70,000 gpd	
(b) Aeration tank	15,012 gal.		70,000 gal.	
(c) Aeration tank detention time	24 hrs.		24 hrs.	
(d) Air capacity	52.2 CFM		270 CFM	
(e) Blower	3 HP		one at 3 HP one at 5 HP	
(f) Clarifier volume	2,872 gal.		11,700 gal.	
(g) Clarifier detention time	4.6 hrs.		4 hrs.	
(h) Clarifier surface loading rate	237 gal/ft^2		256 gal/ft^2	
(i) Clarifier weir overflow rate	1,579 gal/L.F.		2,080 gal/L.F.	
(j) Aerobic digester	3,393 gal.		16,000 gal.	
(k) Aerobic digester-cu.ft./capita	3.05		3.05	
(l) Chlorine tank	392 gal.		2,000 gal.	
(m) Chlorine tank detention time	37.7 min.		40 min.	
(n) Gas chlorinator capacity	100 lb/day Max.		100 lb/day Max.	
Percolation Ponds				
(a) Number of ponds	2		2	
(b) Bottom area, each pond	20,000 sq. ft		20,000 sq. ft.	
(c) Dosing rate (average)	0.375 gal./ft^2/day		1.75 gal./ft^2/day	

Alternatives Available to this Department

1. Approve the subdivision plat as submitted. From the data submitted, the department gave serious consideration to this alternative. Adequate evidence that a water supply is available has been given. Approved solid waste facilities are available. The sewage treatment system is acceptable. The wastewater disposal system is an experimental method for the climatic and geographic setting of Gallatin Canyon. Therefore, a blanket approval would be premature.

2. Approve the initial phase of Beaver Creek South and base further action on operation of the wastewater disposal system. Serious consideration was given to this alternative and exercise of this alternative can be justified in light of concept criteria required by MAC 16-2.14(10)-S14340, Section 69-5001 through 69-5005, R.C.M. 1947, and Section 69-4801 through 69-4827, R.C.M. 1947. The system would have to be monitored. If the evidence indicated there was forthcoming degradation of groundwater, the percolation ponds would be expanded. Five acres are available for this purpose. Dosing rates (average) could be reduced to approximately 0.075 gallon per square foot per day.

3. Refuse to approve the subdivision plat under any conditions. From the evidence submitted, the department could not justify the exercise of this alternative.

This statement was prepared by Alfred P. Keppner, B.S.F., M.S., Soils Scientist, with information furnished by Brelsford and Associates, Morrison-Maierle, Inc., Montana Department of Highways, Montana Department of Fish and Game and others designated therein.

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

STATE DOCUMENTS
SEP 26 1973
MONTANA STATE LIBRARY

September 20, 1973

Honorable Thomas Judge, Governor, State of Montana
Ric Graetz, Box 894, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Perry Nelson, Gallatin Sportsmen's Association, 526 No. Bozeman Ave., Bozeman
Don Aldrich, Montana Wildlife Federation, 410 Woodworth Avenue, Missoula
James Goetz, Bridger Canyon, Bozeman
Bozeman Chronicle, Bozeman
Ron Schleyer, Billings Gazette, Billings
U. S. Forest Service, Northern Region, Federal Building, Missoula
Dr. James Jezeski, Department of Microbiology, MSU, Bozeman
Board of County Commissioners, Courthouse, Bozeman
Board of County Commissioners, Virginia City
City-County Planning Office, Courthouse, Bozeman
County Planning Office, Courthouse, Virginia City
Gallatin County Health Department, Box 639, Bozeman
Gene Wilkins, M.D., Co. Health Officer, Ennis
Chris Kraft, Sanitarian, Courthouse, Dillon
Charles Bradley, 1105 South Tracy, Bozeman
Fletcher Newby, Environmental Quality Council, Helena
J. David Penwell, Big Sky
Dennis Fisher, Big Sky
Dorothy Bradley, Route 3, Box 114, Bozeman
Department of Fish and Game, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Department of Natural Resources and Conservation, Helena
Department of State Lands, Helena
Montana Highway Department, Helena
Montana State Library, Helena

Gentlemen:

The attached environmental impact statement has been prepared for your consideration under the Montana Environmental Policy Act. We will accept comments and questions about this development for a 30-day period following the date of publication. A 15-day extension of the comment period may be granted if there is sufficient reason.

All correspondence should be addressed to the undersigned.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer

cc: Ben Wake

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

September 20, 1973

# DRAFT ENVIRONMENTAL IMPACT STATEMENT
for
CASCADE SUBDIVISION IN MADISON COUNTY

Pursuant to the Montana Environmental Policy Act, Section 69-5604(b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions; and the act to control water pollution, the following statement was prepared by the Environmental Sciences Division of the State Department of Health and Environmental Sciences for the above subdivision, the developers of which have requested removal of the sanitary restrictions. State law requires that the sanitary restrictions be removed before erection of any building requiring facilities for the supply of water or the deposition of sewage.

Location

This development would encompass all of section 19 and portions of sections 29 and 30, township 6 south, range 3 east, Madison County as shown on the attached map. It is part of the total Big Sky of Montana development.

Description of the proposed development

The developers, Big Sky of Montana, Inc., would divide 707.86 acres into 363 lots for single family homes and 12 multiple homesite areas to accommodate a total of 420 families. Between 950 and 1,000 condominium units also would eventually be included. Approximately 20 percent of the area, 142.191 acres, would be open space. The Madison County Commissioners waived the requirement that land be dedicated for public park or that payment be made in lieu thereof.

Three existing eight-inch diameter wells would furnish 500 gallons per minute of water for the subdivision and the Mountain Village commercial core, which will be located just south of the main portion of the proposed subdivision in section 30. Water from the wells would be chlorinated and stored in a 500,000 gallon tank.

A sewer line now under construction would carry sewage from the Mountain Village and Cascade Subdivision to the tertiary treatment ponds in Meadow Village. Effluent from these ponds is spray irrigated on the nearby golf course. There is no discharge to any stream. The ponds are sealed to protect the groundwater.

An extensive array of restrictive covenants now in effect on the rest of the Big Sky development would apply to the Cascade Subdivision. The

covenants provide in part as follows: Each owner or lessee shall provide suitable receptacles for the containment and collection of trash and garbage, which must be enclosed or screened or otherwise unexposed to public view. Animals are permitted in the subdivision only so long as they do not constitute a nuisance to others.

No existing tree may be cut, removed, or voluntarily destroyed by any party including property owners, without obtaining the prior written approval of the architectural committee. Such removal must be for aesthetic purposes, to promote safety, to facilitate construction, or as part of a landscape plan.

All utility lines would be underground.

The covenants specifically note that fireplaces would be allowed. Each dwelling unit must include not less than 1,500 square feet of living space, exclusive of open porches, patios, carports, garages or basements. Condominium units would be smaller, and probably would average about 1,000 square feet each.

Electric heating will be required by the architectural committee, according to the Big Sky officials. Fire protection for the subdivision would be provided by a volunteer fire department. The fire department now serving Meadow Village in the Big Sky development has 25 men and a pumper truck. Another unit in the Mountain Village would be similarly equipped. Water could be pumped from the water storage tank or from the 11-acre man-made lake which is to result from a dam just south of the subdivision. All structures must conform with the Uniform Building Code of the International Conference of Building Officials, the National Plumbing Code, and the National Electrical Code.

The Big Sky development is recognized as a seismically active area and is placed in earthquake zone 1 under the Uniform Building Code. All buildings must be built to withstand the most serious earthquake expected in zone 1 areas.

The area of the subdivision is not under any potential avalanche sites.

Road surface would be gravel during the initial stages, with backtop later on. Existing drainage courses would be continued under roads with culverts.

Culverts through fill sections would be used where small creeks must be crossed by roads.

Roads in the subdivision would be kept open in winter by Big Sky until some other agency took the responsiblity.

Big Sky projections indicate building would be complete in the subdivision within five to ten years.

Topography and soils

This property is mostly on a slope of approximately 10 percent, facing south. Somewhat more than half of section 19 was clear-cut before it was acquired by Big Sky. All slash has been cleaned from this clear-cut area, but there is no evidence of any second-growth trees. Where there are no trees, the ground cover is low alpine grasses. The remaining blocks of timber are mostly very dense lodgepole pine with some spruce and fir.

There are between six inches and two feet of topsoil in the area, underlain by glacial gravel. Permeability is high. Several small creeks run through the property.

Impact of the proposed development

It is difficult to separate the impacts of this subdivision from those created by the total Big Sky project. It appears that the potential for water pollution would be nil if the proposed water and sewer systems were installed and maintained properly. The only air pollution potential would result from fireplaces, smoke from which would be a minor problem, inoffensive to the residents. There would be some dust during the early stages of the project when the roads were gravel surfaced and while construction was in progress on the building sites.

Less predictable are the impacts likely to result as the expanding population of Big Sky increases the recreational pressure on the adjacent Spanish Peaks primitive area. A spokesman for the Forest Service said that the adjacent primitive area is not over used, but restrictions may be necessary in the next few years to prevent over use. The environmental impact statement prepared by the Forest Service on the land exchange with Burlington Northern said that such restrictions would be necessary regardless of whether the exchanges went through, and thus, regardless of whether Big Sky continued to develop.

The potential for increased impact on the primitive area to result from this subdivision, therefore, appears impossible to pin down. There would probably be a substantial increase in primitive area use however.

Another question regards the extent to which game use the area that would be occupied by the subdivision. In the Forest Service impact statement cited above, a letter from the State Department of Fish and Game said Big Sky "contains no critical winter range that we are aware of." Summer range appears to be another matter however. Dr. Harold D. Picton of Montana State University in his paper, Human-Wildlife Interactions in the West Gallatin Area, Montana, said, "An estimated 42% of the summer range has already, or will soon, suffer degradation as elk habitat because of development and use." A map included in Dr. Picton's study indicates a portion of the proposed subdivision is included in the summer range area.

Whether construction of the controversial road is proposed to connect Big Sky with Ennis would result from the presence of the

subdivision is impossible to say, although an expanding population near Mountain Village would seem to encourage such a road.

Dr. Picton estimates that construction of the road over the Jack Creek route probably would eliminate elk use on 20 sections of land. Use of the Cedar Creek route probably would eliminate 45 sections as elk range (according to Picton).

The Fish and Game Department tentatively agrees with Dr. Picton's assessment as noted in the attached letter.

It seems safe to say that some impact on wildlife would result from approval of the subdivision, although the extent of the impact would be impossible to determine with certainty.

Another potential source of impacts is the Big Sky policy requiring electrical heat in the subdivision. Big Sky officials said they required electric heat because it was recommended by the Montana Power Company and because the use of electrical heat would eliminate visual impacts that otherwise could results from the installation of oil or propane tanks.

Electrical heat, on the other hand, would distribute its impacts elsewhere. Already, for example, the expansion of the Big Sky project has caused the Montana Power Company to extend a new 69 kv power line up the Gallatin valley from near Bozeman. According to Montana Power Company spokesmen, the new line can deliver seven megawatts to the upper Gallatin area. The same spokesmen said that in 1970, Big Sky was expected to have a demand of 10 mw by 1975. This demand has been delayed by the various delays in the development of the project. Nevertheless, Montana Power figures show that another new power line will be required to supply the area before long. The route of this line has not yet been determined according to the company.

The restrictive covenants require that each family home have at least 1,500 square feet of floor space, and the condominium, up to 1,000, would have about 1,000 square feet each. Montana Power estimates that it takes from 10 to 14 watts per square foot for heating. Assuming it takes 10 watts per square foot, it would then require approximately 16 mw for heating alone in the subdivision when it was completed.

As recently as January 1973, a Montana Power Company executive vice-president testifed to the Board of Health that his company did not advertise electric heat because "It's just not practical in Montana."

Montana Power spokesmen said they did not advocate electrical heat to the Big Sky developers, although they thought it would be competitive with oil on a cost basis. In the past, they said they have not boosted electrical heat because they have not had the power to spare. As of January, Montana Power figures showed only 1,483 homes in the company's

service area were heated electrically. Presumably, power company officials will come to look more favorably upon electrical heat as the additional generating capacity at Colstrip comes on line.

It should be emphasized that not all impacts of the development would be negative.

The most obvious favorable impact would be the increased tax base for Madison County. Rough estimates furnished by Big Sky indicate that the land now brings Madison County about $20,000 per year, compared to approximately $800,000 when building is complete.

A further bonus would result from the substantial amount of construction work that would ensue in the subdivision.

Alternatives available to this department

If necessary, alterations of the water or sewer system could be required. No major changes seem necessary as the water and sewer systems appear to meet all state regulations. Further, the tertiary sewage treatment system should allow the development to operate at full capacity with no degradation of ground or surface water.

Short-term/Long-term comparisons

There is a philosophical difference in Montana over whether second homes and recreational subdivisions are in the best interest of the environment.

One side argues that the use of land and building materials for second homes is shamefully wasteful and should not be allowed. The other point of view holds that tax and job-producing resorts such as Big Sky and its appurtenant subdivisions are at least a partial solution to the old problem of how to get Montana out of its economic doldrums without demolishing its physical environment.

It is certain that the land proposed for development would produce far more revenue as a subdivision than as timber land that could only be harvested once per hundred years.

Irreversible commitment of resources

Some non-recyclable materials would be used in construction. The coal used in generating power for electrical heat is both non-recyclable and non-renewable.

Comments

As required by the Montana Environmental Policy Act, this statement is being circulated among interested agencies and individuals for their comments. Beginning with the publication date listed on this statement,

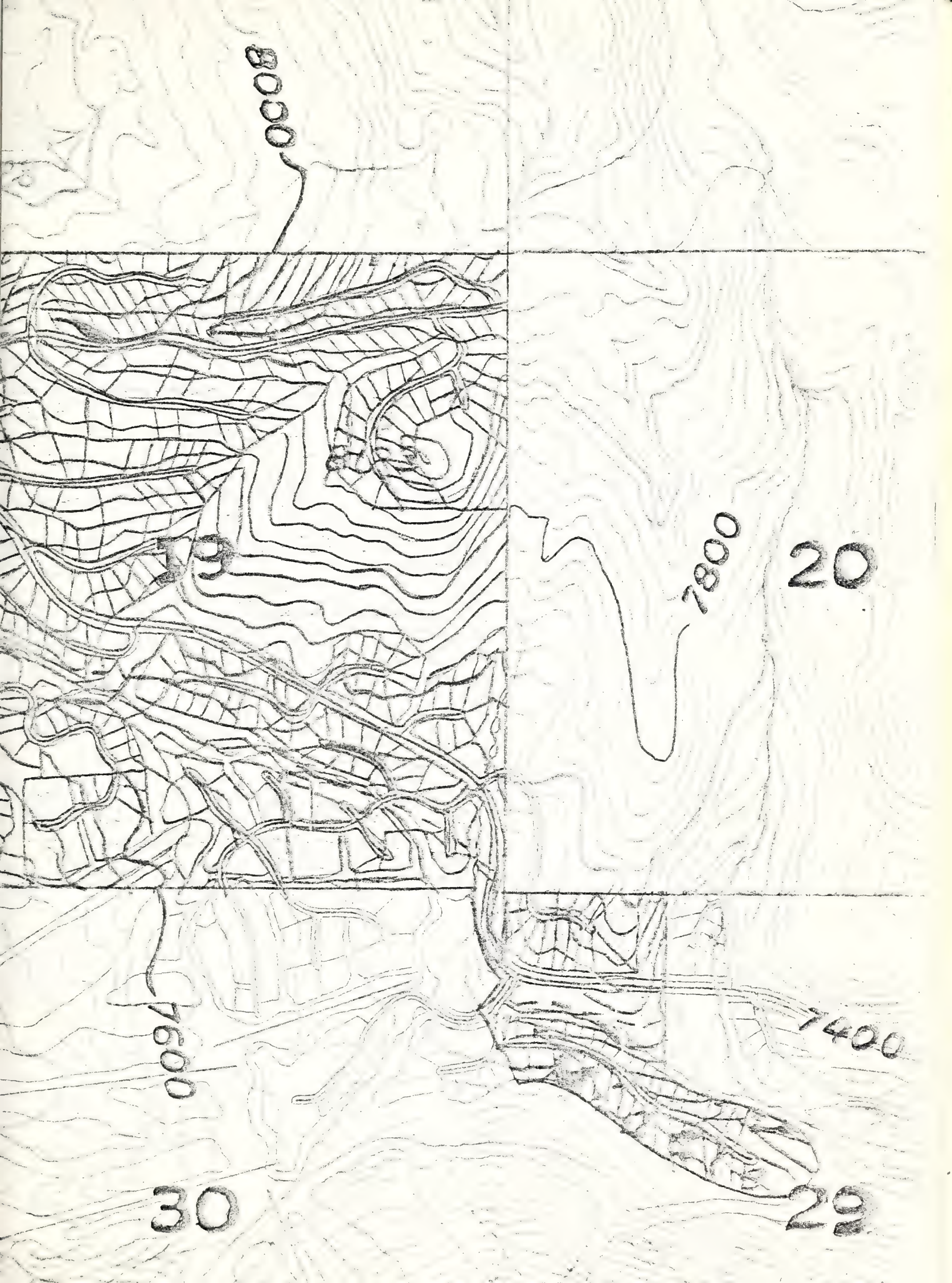
there is a 30-day waiting period during which comments will be accepted. A 15-day extension may be granted if there is sufficient reason.

If there is substantial negative comment, a final impact statement must be prepared no sooner than 30 days after publication of the draft. No action could be taken within 30 days following publication of the final.

If no substantial comment is received and no final is required, there is still a minimum 60-day waiting period following publication of the draft statement, during which the state may not take action. However, the Environmental Quality Council may waive a portion of the 60-day period if significant negative comment does not result from publication of the draft statement.

Although the Montana Environmental Policy Act requires this department to assess all impacts that could result from a development, only the inadequacy of sewage or water supply facilities are grounds for rejection of the plan.

This statement was prepared by Daniel Vichorek, Technical Writer, with information furnished by Art Clarkson, P.E., Water Quality Bureau; Big Sky of Montana, Inc.; the U. S. Forest Service; the State Department of Fish and Game; Dr. Harold G. Picton; the Gallatin Canyon Study Team; the Murray-McCormick Environmental Group; Morrison-Maierle, Inc.; and the Montana Power Company.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STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME

Helena, Montana 59601
May 7, 1973

Mr. Dan Vichorek
Technical Writer
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Dan:

I have received and studied your letter of April 26 regarding the environmental impact assessment of the Big Sky project. As I mentioned on the phone, the statement quoted in your letter which was contained in a previous letter from this department to the Forest Service has lost much of its original meaning, and certainly most, if not all, of its intent.

Now that we can see what Big Sky has become, coupled with satellite development, land exchanges, and programs to construct highways into the Madison drainage, we certainly would have to alter our assessment.

While at no time did this department oppose Big Sky development, we have frequently spoken out against other things that have attended it, and in all cases our opinions had little if any impact.

I also believe that the statement made by Dr. Harold Picton in his paper, "Human-Wildlife Interactions in the West Gallatin Area, Montana," is essentially correct.

In regard to the proposed fish hatchery, we certainly have no objection to that particular project if the fish are going to be used on Big Sky property. In fact, I believe such a facility would help insure continued high quality water maintenance. However, before Big Sky planted any fish in Montana waters they would have to come to some sort of an agreed program for fish stocking with this department. I do not believe this would be too difficult to accomplish. Our main interest would be in protecting native fish strains, both genetically and from adverse competition from large introductions of hatchery fish.

The biggest problem we are experiencing with the Big Sky development itself appears to be their unwillingness to temper their project so that adjacent and associated resources might be protected. An example of this is their opposition to expanding the Spanish Peaks wilderness area to include portions of the Jack Creek drainage. The only purpose for this opposition would be a desire to put

a road from the Gallatin River to the Madison River through Big Sky and Jack Creek. At the present time wilderness values of the Spanish Peaks area are very heavily used and in need of protection.

I am enclosing for your review some additional correspondence that you may find of interest.

Sincerely,

James A. Posewitz

JAMES A. POSEWITZ, ADMINISTRATOR
ENVIRONMENT AND INFORMATION DIVISION

JAP/sd
Enc

FOREST SERVICE
Gallatin National Forest
Gallatin Ranger District
Gallatin Gateway, MT 59730

REPLY TO: 1940 Environmental Statements

May 10, 1973

SUBJECT: Data for Environmental Impact Statement

TO:
Daniel Vichorek
Department of Health and Environmental Sciences
State of Montana
Helena, MT 59601

My reply in order of yourquestions.

The Forest Service has the authority and responsibility to control use of primitive areas to the extent necessary to protect the primitive area. I believe that current management which will include permits for overnight horse parties this summer and very possibly permits for all primitive area visitors in 1975 or 1976 is adequate for the next few years. As use increases and poses the threat of damage, further restrictions may be necessary. Areas adjacent to Big Sky are not over used. (I'm not sure if you mean primitive area in your question, but in either case, it applies).

The classification of the Spanish Peaks Primitive Area as Wilderness is presently before Congress. The continued development of Big Sky will not affect the classification proposed by the Forest Service. However, some individuals and organizations favor the addition of the Jack Creek drainage to the Forest Service Wilderness proposal. Senator Metcalf introduced such a bill in the 1972 Congress. If Jack Creek drainage were classified as Wilderness, then a highway could not be built in that area to serve Big Sky. The State Highway Department should be able to provide information on alternate routes to the west.

Big Sky's public position is that a highway to the west is not necessary to their development. Murray-McCormick's Gallatin Canyon Plan shows a schematic location and provides some discussion of need. Many Madison County residents desire such a highway. If the people of the United States desire a highway in Jack Creek it cannot be classified as Wilderness and vice versa. Pressure for any kind of non-Wilderness development tends to inhibit Wilderness Classification.

The Forest Service EIS on big game was based on State Department of Fish and Game information. Dr. Pictin has been making a recent detailed study. You should consult with each for your information. The information you included in your question do not necessarily conflict. The Forest Service EIS quotes Montana Fish and Game that the development area "contains no critical winter range areas that we are aware of." Previous to that we

pointed out that the Big Sky development would affect wildlife. I have only a summary of Dr. Pictin's work and do not wish to argue its validity. His is the most detailed study of the area to date. His conclusions you refer to are prefaced by words such as "most likely" and "indicate". Elk are only one of several possible effects on bighorn sheep that he discusses. His work is a good start toward long term scientific evaluation of the big game situation in the West Fork but is too short term to base conclusions on. I should also point out that later in the report Dr. Pictin says, "It should be noted that the Spanish Peaks Primitive Area does not contain winter range." This conflicts with his point about elk - bighorn sheep conflict. Have I confused you enough? I feel more information is needed for a sound conclusion.

If I can be of further help, please let me know.

ROBERT M. CRON
District Ranger

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final

STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

KALISPELL REGIONAL OFFICE-Box 1031-Kalispell, MT 59901 John S. Anderson M.D. DIRECTOR

August 22, 1974

SEP 6 1974

COPIES TO:

Barnaby Lake Company, Box 93, Eureka, MT
Environmental Quality Council, Mr. J. W. Reuss, Box 215 Capitol Station, Helena
Montana Fish & Game Dept. Attn: Mr. Jim Posewitz, Mitchell Bldg. Helena
State Dept. of Health & Env. Sciences, Water Quality Bureau, Attn: Mr. Art Clarkson Helena
Montana State Department of Intergovernmental Relations, Div. of Planning & Economic Development, Capitol Station, Helena
Montana State Library, 930 E. Lyndale Ave. Helena
Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena
USDA Forest Service, District Ranger, Murphy Lake Ranger Station, Fortine
Lincoln County Board of Commissioners, Courthouse, Libby
Lincoln County Sanitarian, Mr. T. S. Schultz, Libby
Mr. Wayne Herman, President Flathead Wildlife, Box 4 Kalispell
Student Environmental Research Center, Room 212, Venture Center, Missoula
Tobacco Valley Improvement Association, % Mrs. Schroeder, Box 358 Eureka
Tobacco Valley Rod and Gun Club, Eureka
Trout Unlimited, Box 858, Kalispell
Mr. R. Titchbourne, % Postoffice, Fortine
Fortine Public Schools % Postoffice, Fortine
Mr. Dean K. Marquardt, P.E.,

Gentlemen:

The enclosed Final Environmental Impact Statement represents the decision of this Department concerning the proposed Barnaby Lake Properties, Subdivision Number 1 and 2 in Lincoln County, Montana.

You have previously received a copy of a Draft Environmental Impact Statement which was written January 28, 1974.

Sincerely,

Wilbur O. Aikin, P.E.
Public Health Engineer
Environmental Sciences Division

WOA:jh

930 East Lyndale Avenue
Helena, Montana 59601

FINAL ENVIRONMENTAL IMPACT STATEMENT

FOR

BARNABY LAKE PROPERTIES, NUMBER ONE AND NUMBER TWO

A Proposed Subdivision Development in Lincoln County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3), the act controlling both public and private water supply and sewage disposal for subdivision, Section 69-5001; and the act to control water pollution, Section 69-4801 to 4827; the following Final Environmental Impact Statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Barnaby Lake Properties Subdivisions Number 1 and 2, located 3.5 miles west of Fortine in Lincoln County, Montana.

DESCRIPTION OF PROJECT AND PROPOSED ACTION

As previously outlined in the Barnaby Lake Subdivision Draft Environmental Impact Statement of January 28, 1974, the Montana State Department of Health has received a request for approval of a Lincoln County subdivision project encompassing 42 lots on 140 acres.

The project is to be platted and filed as two separate entities; Number 1 includes 19 lots on 15 acres all of which have 100 to 120 feet of frontage along Barnaby Lake, and Number 2 which shows 23 lots on 125 acres of rolling foothill forest land in that area contingent to and directly behind the Number 1 subdivision.

The owner-developer is the Barnaby Lake Company of Eureka, Montana; D. K. Marquardt Civil Engineer and Land Surveyor completed the surveying and engineering portions of the project.

An elapsed time of approximately 200 days has been recorded since the Draft Statement was issued; all final comments have been received and environmental problems under the jurisdiction of this Department have been resolved. An evaluation by the County Commissioners, acting in the absence of an official planning agency has been recorded and the written approval by the Lincoln County Sanitarian has been received. Copies of pertinent statements regarding this project have been attached to this report for your review.

SUMMARY

The one serious consideration which emerged from this proposal was the question of lot density in the area along the Barnaby Lake shoreline. This involved virtually all lots in the Number 1 Subdivision, and further soil investigation became necessary to verify that a minimum 20,000 ft^2 of usable space existed on each lot. The Lincoln County Sanitarian (Mr. Terrance Schultz) was extremely helpful in validating the premise that this amount of space, along with an adequate building site, did exist on each platted lot. In particular, the planned access road was rerouted inland approximately thirty feet to accomodate the required enlargements.

Other changes or additions made by the developer to meet the requirements of the County and/or other interested agencies included:

1. The recording of a comprehensive set of protective covenants. This document is comprised of 13 pages the first part of which deals with common property and the Homeowners Association (including the water system) with the second part dealing with environmental considerations. A paraphrase of Part II can be shown here as:

    (a) All lots except common properties shall be designated for single family residential use.

    (b) Minimum size of residence shall be 600 ft^2 and such residence must be completed within 24 months of inception.

    (c) Water and sewage systems must comply with the laws and regulations of both the State and County authorities.

    (d) No trash, garbage or other refuse shall be thrown or dumped on any land within the premises. No burning, other than recreational fires, will be allowed unless approved by the Lincoln County authorities.

    (e) No signs, billboards or advertisements shall be erected and maintained on the premises.

    (f) Disturbance, destruction or damage to any plant life, animal life or their natural habitats is forbidden except where absolutely necessary for the placement or construction of improvements. Living trees shall not be cut, removed or trimmed except as approved in advance by declarant.

    (g) Mobile homes may be used for residence insofar as they conform with the required sizes and are placed upon permanent skirted foundations within 60 days of arrival.

    (h) No structure of any kind shall be erected within 15 feet of the property line and no building addition, garage or structure shall be placed or parked closer than 50 feet to the shoreline of Barnaby Lake.

    (i) No large animals or livestock shall be permitted on any lot in the Number 1 subdivision.

    (j) There shall be no further subdivision of lots without written consent of the declarant and approval of State and County.

    The declaration is concluded with a series of paragraphs relative to the covenant matters on duration (20 years, plus extension conditions), amendment, enforcement, servicability, and liability.

2. The provision of a committment by the developer relative to the implementation of the water supply system. Because these 42 lots are to be served by a community system, plans and specifications have been submitted to the State Department of Health asking approval of that system. As proposed, it is to consist of a well (or wells if two are needed to meet the instantenous peak load) with a phase 1 hydropneumatic tank to be replaced by a phase 2 storage tank as soon as enough users come on the system to require such a feature. Such a plan is approvable from a public health point of view, but it includes possible problems should 51% of the lots be conveyed and the water system transferred to the Homeowners Association before phase 2 is needed.

   To preclude the possibility of misunderstanding the developer has gone on record by means of a statement included in the Lincoln County Commissioners record to the effect that the Barnaby Lake Company has the sole responsibility for the construction of the system as planned. Phase 2 will be implemented at any point in future time where such a facility is deemed necessary by the Lincoln County Health Department.

   In addition, it was decided that although the existing well satisfied the requirement of H.B. 465, it would be prudent to complete a new community well rather than redevelop the older facility. A new well is now being drilled. Minor changes in the system design may be necessary depending on the hydrogeologic characteristics of the newly drilled well.

CONCLUSIONS

It would now appear that the re-evaluation and slight enlargement of the lakeside lots coupled with the filing of a specific set of protective covenants including an agreement on the implementation of the water supply system answers the majority of the comments received on this project.

Still unanswered is the suggestion that such lot densities as are noted herein are inappropriate along any "pot hole" lake which is susceptible to accelerated pollution because of the lack of any natural flushing processes. The adverse impact comment on fish and game habitat is similarly unsatisfied because of the conflicting basic land use decision in favor of human habitation.

In conclusion, the plans and supplemental information relating to water supply, sewage, and solid waste systems for the Barnaby Lake Properties, Number 1 and 2 are now in compliance with Section 69-5001 to 69-5005, Revised Codes of Montana and it is the intention of this office to afix a stamped endorsement along with the conditions of approval to the final plats to be recorded with the Lincoln County Clerk and Recorder.

This statement was prepared by Wilbur O. Aikin, P.E., a Public Health Engineer in the employ of the Montana State Department of Health and Environmental Sciences Regional Office in Kalispell, Montana.

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

Office Memorandum

TO : Wes Woodgerd Attn: Jim Posewitz **DATE**: Feb. 19, 1974

FROM : Tom Hay By: Otis Robbins

SUBJECT: Barnaby Lake properties

The subject subdivision is located about 3.5 miles west of the town of Fortine in the foothill area. A total of some 42 lots will be developed on about 140 acres. High density development will take place along the shores of Barnaby Lake with other lots of about 5 acres each developed away from the lake.

Barnaby Lake is about 58 acres in size with a maximum depth of about 10 feet. Water chemistry and physical features preclude managing this body of water for trout species. It is considered a closed system and doubtful of supporting fish life.

The area of the subdivision is heavily forested with a good supply of timber species and brush. It is the year-round home of deer, some elk and moose, and upland game birds. This area is a very important winter range for big game species, especially deer. Waterfowl also are an important part of the wildlife scene. Any use of the winter range by man could be very detrimental to deer, not only in the immediate 140 acre site but also on surrounding areas.

Based on the adverse impact that this subdivision will have on deer we would recommend that the subdivision be disapproved.

Otis Robbins

OR/ea

Department of Public Health
LINCOLN COUNTY COURTHOUSE
512 CALIFORNIA AVE.
LIBBY, MONTANA 59923

MARY ANN CROTHERS
COUNTY HEALTH NURSE
PHONE 293-6249

TERRENCE S. SCHULTZ, R.S.
ENVIRONMENTAL HEALTH DEPT.
PHONE 293-6316

August 6, 1974

Dean K. Marquardt
809 First Ave. E.
Kalispell, Montana 59901

Dear Mr. Marquardt,

This letter is relating your Barnaby Lake Subdivision Unit 1. I am satisfied that each lot will now contain at least 20,000 sq ft per lot and that each individual sewage system containing a lift station meets my offices standards of subdivision approval.

This letter also addresses the problem of responsibility within this subdivision. I wish to see a statement outlining who will be responsible for the construction and maintenance of the water supply system, the developer or the land owners association? I believe that it is common practice for the developer to construct and maintain the water supply system until 50% of the lots are sold and at that point the land owners association will assume that responsibility.

Secondly, I would like to see the land owners association assume the responsibility of maintaining the cattle guard and that each private land owner be responsible for keeping his fences in repair.

Thirdly, I have made reference to a land owners association earlier in the letter. I would like to see a set of bylaws or articles of incorporation that define the responsibilities of that association, and that membership is mandatory upon purchasing of a parcel within the subdivision.

Finally, just a notation to this letter of a subject we have already verbally agreed upon. This notation refers to the designation of road right of way and the lake access lot (located between lots 14 and 15). These two areas should be dedicated to the home owners association.

In summary, the lots are of sufficient land area to meet the approval of my office's standards. With the addition of a lift station, as suggested by Eric Teittinen, the individual sewage system also meets my standards. Thank you for your delineation of useable lot area. I would appreciate seeing, in a set of covenants or deed restrictions or association bylaws, the afore mentioned areas of responsibilities defined. Please feel free to comment.

Sincerely,

T. S. Schultz

Terrence S. Schultz, R.S.

21

STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME

Helena, Montana 59601
February 22, 1974

Mr. Wilbur O. Aikin
Department of Health and Environmental Sciences
Box 1031
Kalispell, Montana 59901

Dear Mr. Aikin:

As requested in your letter of January 28, we have reviewed the impact statement for Barnaby Lake properties.

The review was conducted by our regional office and a copy of the memo they prepared following that review is attached.

Once again you can see that wildlife habitat is being affected. Any consideration you can obtain for this resource would be greatly appreciated.

Sincerely,

James A. Posewitz, Administrator
Environment and Information Division

JAP/sd
Enc

cc: Fletcher Newby
Dan Vichorek
Otis Robbins

Department of Public Health
LINCOLN COUNTY COURTHOUSE
512 CALIFORNIA AVE.
LIBBY, MONTANA 59923

MARY ANN CROTHERS
COUNTY HEALTH NURSE
PHONE 293-6249

TERRENCE S. SCHULTZ R.S.
ENVIRONMENTAL HEALTH DEPT.
PHONE 293-[illegible]

Lincoln County Commissioners
Libby, Montana 59923

Gentlemen:

This letter relates to the final approval of the Barnaby Lake Subdivision units 1 and 2.

I recommend to you that you conditionally approve the filing of the subdivision. This conditional approval relates to the construction of an adequate water supply by the developer. In contacting the developer, Mr. Al Luciano, we have come to common agreement that the water supply system will occur in two phases.

The first phase will be the development of a well that will handle the initial impact of users. Upon the determination of my office, the developer, or home owners association, the second phase of the water supply system will begin.

In the second phase, it would be the responsibility of the developer to meet the real and anticipated needs of the rest of the subdivision by a water supply approved by the Department of Health.

Failure of the developer to meet the first phase of the water supply within one year after conditional approval has been given, will result in declaring the subdivision void. If the second phase is not meet within a reasonable period of time after the need is determined by any one of the three afore mentioned parties in a written statement to the Lincoln County Commissioners, then the development will be restricted at that point

Briefly restated, Mr. Luciano and my office have agreed to the conditions of approval of the Barnaby Lake Subdivision Units 1 and 2. I am giving you my recommendation of conditional approval for evaluation and judgement.

I will be at your disposal if you wish any additional information or comment from me.

Sincerely,

T. S. Schultz

Terrence S. Schultz, R.S.

TSS:mc

cc: Alfred Luciano, Developer
Wilbur Aiken, Dept. of Health & Environmental Sciences

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
KOOTENAI NATIONAL FOREST
Fortine Ranger District

February 28, 1974

State of Montana
Environmental Sciences Division
Wilbur O. Aikin P.E.
Kalispell, MT 59901

Dear Sir:

In reference to your Draft Environmental Impact Statement on the Barnaby Lake Properties Subdivision 1 and 2 near Fortine, I submit the following:

1. This subdivision does not directly affect any U.S. Forest Service Lands.

2. The U.S. Forest Service is responsible for fire protection in this area and any increase in population will increase the fire protection for the area.

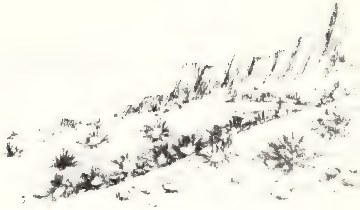
3. Barnaby Lake is a Waterfowl nesting and resting area and any population increase could change this.

Dean Weeden

DEAN J. WEEDEN
District Ranger

de

RECEIVED
MAR 01 1974
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
KALISPELL REGIONAL OFFICE



Thomas J. Lynaugh

February 28, 1974

Mr. Wilbur O. Aikin, P.E.
Department of Health and Environmental Sciences
Box 1031
Kalispell, Montana 59901

Dear Mr. Will Aikin:

The following remarks are in response to your department's draft environmental impact statement for Barnaby Lake Properties Subdivision 1 and 2, dated January 28, 1974 and received by this office on January 31, 1974.

It is evident from the lot densities near the lake that the principal goal in mind was to maximize profit and perhaps human enjoyment of the lake. This can only result in accelerated degradation of this resource. From the standpoint of esthetics and protection from further water quality degradation, the number of lots along the lake could have been reduced or a strip of land along the lake could have been dedicated to the county for a public park.

It is advisable that the developer place a number of constraints on the prospective property owners to further protect the resource. These might include a minimum set-back from the lake for buildings, restrictions on the type of buildings placed on the lots or the ultimate disposition of the land, and restrictions on the size and type of docks, dredge and/or fill operations, and chemical weed removal. A shallow kettle lake of this nature is particularly susceptible to advanced eutrophication. It is imperative, therefore, that all property owners observe regulations regarding minimum set-back of sewage disposal devices from the maximum high water level of the lake and that these regulations are enforced, if not by local, then by responsible state officials.

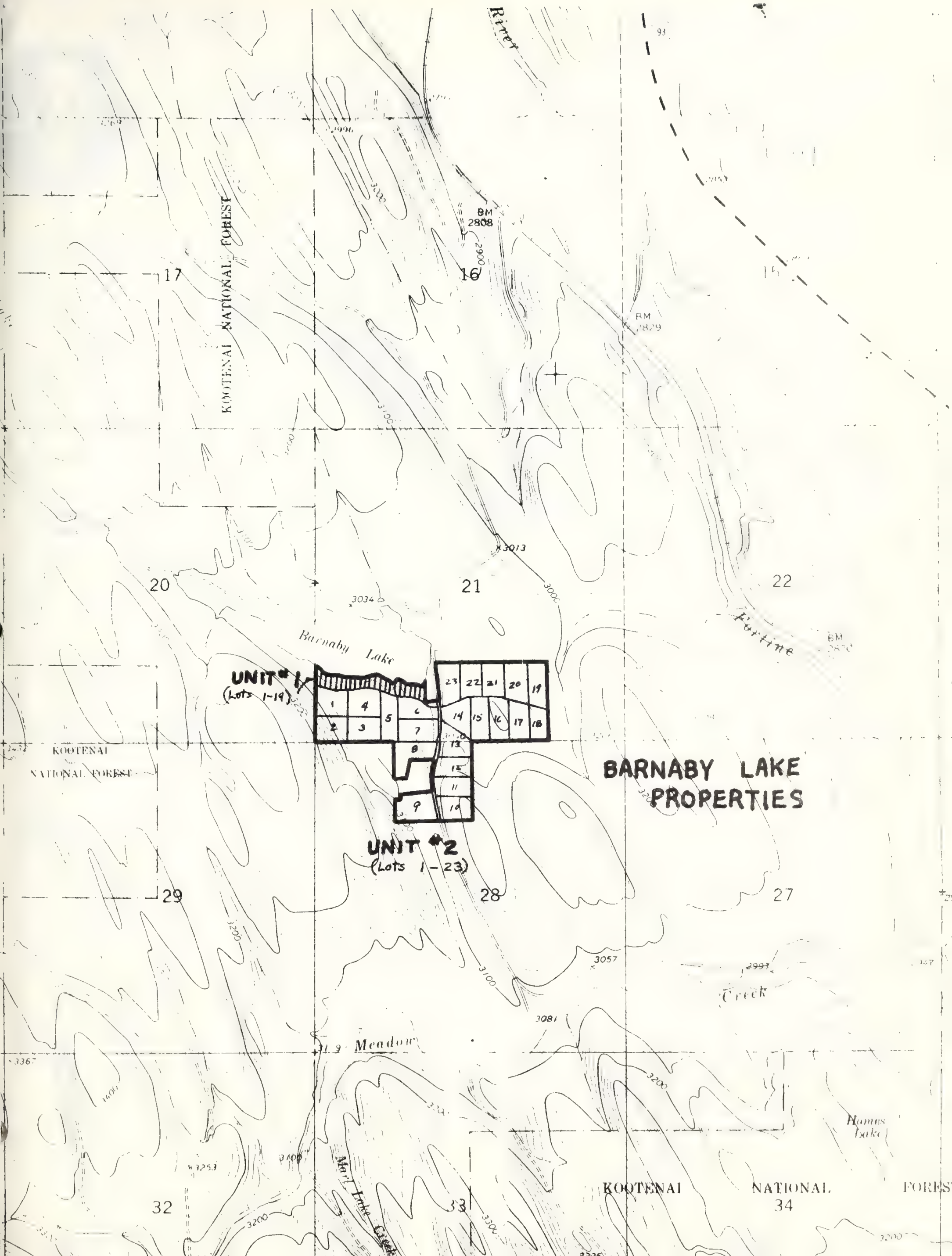
Thank you for your efforts toward compliance with the Montana Environmental Policy Act.

Sincerely Yours,

FLETCHER E. NEWBY
Executive Director

by Loren
Loren L. Bahls, Ph.D.

FEN/LLB/kk
cc: Ben Wake


River
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Fortine
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KOOTENAI
NATIONAL FOREST
BARNABY LAKE
PROPERTIES
UNIT #2
(Lots 1-23)
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3057
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3100
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Meadow
3367
3253
Marl Lake Creek
Homus Lake
32
33
KOOTENAI NATIONAL FOREST
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STATE DOCUMENTS
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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

KALISPELL REGIONAL OFFICE, BOX 1031, KALISPELL, MT 59901

John S. Anderson M.D.
DIRECTOR

January 28, 1974

Barnaby Lake Company, P.O. Box 93, Eureka, MT 59917
Mr. Fletcher Newby, Montana Environmental Quality Council, Helena, MT 59601
Montana Fish & Game Department, Helena, MT 59601 Attn: Mr. Jim Posewitz
Montana State Department of Health and Environmental Sciences, Helena, MT 59601
Montana State Department of Intergovernmental Relations, Division of Planning and Economic Development, Capitol Station, Helena, MT 59601
Montana State Library, 930 E. Lyndale Ave., Helena, MT 59601
Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena, MT 59601
District Forester, Murphy Lake Ranger Station, c/o Post Office, Fortine, MT 59918
Lincoln County Board of County Commissioners, Courthouse, Libby, MT 59923
Mr. Dan Garvin, Lincoln County Planner, Box 802, Eureka MT 59917
Mr. David Marshall, Lincoln County Sanitarian, Courthouse, Libby, MT 59923
Mr. Wayne Herman, President, Flathead Wildlife, Inc. P.O. Box 4, Kalispell, MT 59901
Student Environmental Research Center, Room 212, Venture Center, Missoula, MT 59801
Tobacco Valley Improvement Association, c/o Mr. Schroeder, Box 358, Eureka, MT 59917
Tobacco Valley Rod and Gun Club, Eureka, MT 59917
Trout Unlimited, c/o Mr. Gary Hanson, Secy., 136 1st Ave. W., Kalispell, MT 59901
Mr. R. Titchbourne, c/o Post Office, Fortine, MT 59918
Fortine Public Schools, c/o Post Office, Fortine, MT 59918
Mr. Dean Marquardt, P.E., 809 1st Ave. E., Kalispell, MT 59901

Gentlemen:

Enclosed is Draft Environmental Impact Statement that has been prepared for the Barnaby Lake Properties Subdivision 1 and 2, near Fortine, in Lincoln County, Montana.

Under Montana Law, any person or agency has thirty days to submit comments and/or supply additional information with regard to said project. An additional fifteen days may be granted, upon written request, to any person or agency in need of time to prepare or research a response.

A Final Impact Statement incorporating any comments and/or additional information will be disseminated no sooner than sixty days from the dateline of this report. A decision including the basis for this decision will also be included in the Final Statement.

Sincerely,

Wilbur O. Aikin, P.E.
Public Health Engineer
Environmental Sciences Division

WOA/kmh

January 28, 1974

A DRAFT ENVIRONMENTAL IMPACT STATEMENT

BARNABY LAKE PROPERTIES - UNIT NUMBER 1 AND UNIT NUMBER 2

A Proposed Subdivision Project in Lincoln County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 to 69-5005; and the Act to control water pollution, Section 69-4801 to 4827, the following draft environmental impact statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the possible administrative approval of the Barnaby Lake Subdivisions, located near Fortine, in Lincoln County, Montana.

LOCATION

The preliminary plat of the Barnaby Lake Properties Subdivision(s) indicates that there are to be 42 parcels platted out of a 140 acre block located 3.5 miles west of Fortine, Montana. The developer has indicated that this ground will be platted (and filed) as two separate subdivisions;

1. Barnaby Lake Properties Unit Number 1 - to comprise 19 lots on 15 acres along the lake shore.
2. Barnaby Lake Properties Unit Number 2 - to include 23 lots on 125 acres behind the number 1 unit in the rolling timber land south and east of the lake.

Parcels in the No. 1 shoreline unit average 28,000 ft.^{2} with the smallest lot being 22,500; whereas parcels in the No. 2 backland unit average 4 to 6 acres each. Please see enclosed map for design schematic.

ACCESS

Access to the proposed subdivision is to be made by means of both county and private road. The most reasonable route to the site would be from Fortine and U.S. Highway 93 east for 2 miles on paved county road, thence north on a graveled county road for 1 mile toward the east end of Barnaby Lake. The graveled county road nicely bisects the subdivision thereby requiring a maximum of only 2 new roads to provide access to all lots not contingent to the county road. This regional county road also returns back to Highway 93 along a somewhat more circuitous route. At the request of the County, the spur roads are to remain as private roads. In design they total a length of approximately 4,000 ft. and are shown to be sixty feet wide. Plans also indicate that while they are to be private they will be graveled, ditched and culverted wherever appropriate. No stream crossings are included nor are there any low or wet areas which will need drainage because of road building activity. Purely in terms of potential water quality degradation, the access road net does not appear to be capable of creating any unusually adverse environmental impact.

PLANNING CONCEPTS

1. Water Supply - Water is to be provided to both subdivisions by means of a single community system which will be constructed by the developer. It is anticipated that the source of water for this system is to be drilled well or wells. The feasibility of developing a well source capable of meeting the needs of a system of 42 users is academic at this time. There is an existing 100 foot well of low yield on the property, however it is to be reopened, taken to a greater depth, developed and tested. The planning concept of a community system is therefore not firm and the administrative approval of this project can not be completed until it has been clearly established that the supply will be up to the required standards. The completed system is projected to include one mile of distribution system piping and a 10,500 gallon storage tank.

2. Sewage Disposal System - The treatment and disposal of sanitary sewage is to be accomplished by individual septic tanks and absorption trenches. The soil in this area is extremely tight however, a fact which is verified by the high percolation rates. Values found in the field averaged 27 to 29 minutes per inch and a minimum of 100 square feet of absorption trench, will be required for each bedroom. The developer has properly incorporated this design value into the submitted typical lot layout plan.

Such a planning concept appears to be approvable; however, it must be understood that enforcement of the individual septic tank installations will be the responsibility of the Lincoln County Sanitarian; a county public health official whose offices are approximately 70 miles away in Libby, Montana.

3. Solid Waste - Solid waste is to be consigned to an approved landfill site via the green box containers available at Fortine. Because an individual home pick-up service is not available at the time it must be assumed that it will be the responsibility of the individual lot owner to utilize these disposal boxes until such time as a pick-up service does become a reality.

ENVIRONMENTAL INFORMATION

Topography - Except for the extreme southeast corner, the entire 140 acre block is flat to pocketed or rolling with slopes in the 0 to 7% range. Lots along the lake front unit, in particular, grade away from the shoreline at a uniform 3% rate. The one anamalous area (the south-east corner) is occupied mostly by a moraine-like mound of mixed glacial debris with hillside slopes of 40 to 45%. Three lots are dominated by this unbuildable terrain, however all three also include strips of flat land which will provide a minimum 20,000 feet of readily adaptable space for building purposes. This abrupt included hillside does have a positive value in that it will be a convenient site for the 10,500 gallon storage tank which is to be located on the crest, thereby providing good pressure and storage for the water supply system.

A small shallow pothole lake of about four acres is also included in this southeast quadrant. Again two large lots are effictively reduced in their useful building area to an area of approximately one acre each.

In summary, five lots are affected by the topographical limitations inherent in the property. However it must be pointed out that all five include reasonably large areas of adequate home-location potential, and inasmuch as a community water system will be available they should be readily adaptable for residential use without serious environmental or public health consequences.

Barnaby Lake - Barnaby Lake which is the prime aquatic feature touching on this subdivision is a shallow "home and kettle" pond of about 50 to 60 acres. It has no significant inlet nor outlet and is referred to locally as an "alkili lake". The area has been surveyed by the Montana Fish and Game Department as to water quality and fishery potential with results that have completely discouraged any further management insofar as the fishing objective is concerned. Dissolve solids total from 4,000 to 6,000 mg per liter, pH is in the 9.0 range and maximum depth is only ten feet. Rooted aquatic plants are abundant and, according to local inhabitants, the lake has been known to experience moderate algal blooms. Of a more positive nature the lake does provide nesting habitat for waterfowl, including geese, and can provide a very limited recreational use for boating, swimming, and hunting.

It would be emphasized that the lake will receive the same statuatory protection as any other body of water. Drainfields must still be 100 feet from the waters edge and any activity capable of degrading the water quality further is unacceptable.

Land Use - The area is presently heavily forested with second generation shrubs and timber. A comparative economic evaluation of the land for private timberland management versus this same land as a subdivided recreational homesite area hasn't been made. No information is available which will clearly demonstrate that the proposed subdivision use would, or would not, be the highest and best use of the land.

The existing population density in this area is also extremely low, even for Western Montana. Division and development will bring a new summer population center into existance and it is quite possible that the success of this project may stimulate similar developments in the adjacent pothole lake country.

Of particular interest is the fact that the proposal contains no covenants or restrictions whatsoever. In terms of environmental effect this omission can create a highly undesirable situation beyond the control of any affected person or agency. The implication therefore exists that the individual lot holder can use or misuse his land in any manner so desired.

Secondary Impacts - Cultural and social impacts from this development are very difficult to assess. The developer has assumed that the lot holders of the future will be primarily seasonally (recreationally) oriented. However, there are a few year round residents in the region now and should the project eventually develop a retirement - rural home character, it could have substantial effect on local schools and such other services as telephone, electric power, fire protection, road maintenance and law enforcement.

ENVIRONMENTAL IMPACT

Loss of wildlife habitat, possible loss of timberland potential possible increased degradation of ground water and surface water in area, alteration of population density and pattern of human usage, eventual development of secondary impact in the growing need for public services, possible encouragement of uncontrolled human exploitation of limited recreational resources in area, creation of administrative problems for county officials separated by unusual distance from the area of interest.

ADVERSE ENVIRONMENTAL EFFECT

Loss of wildlife habitat and addition of nutrient to ground water system.

ALTERNATIVES

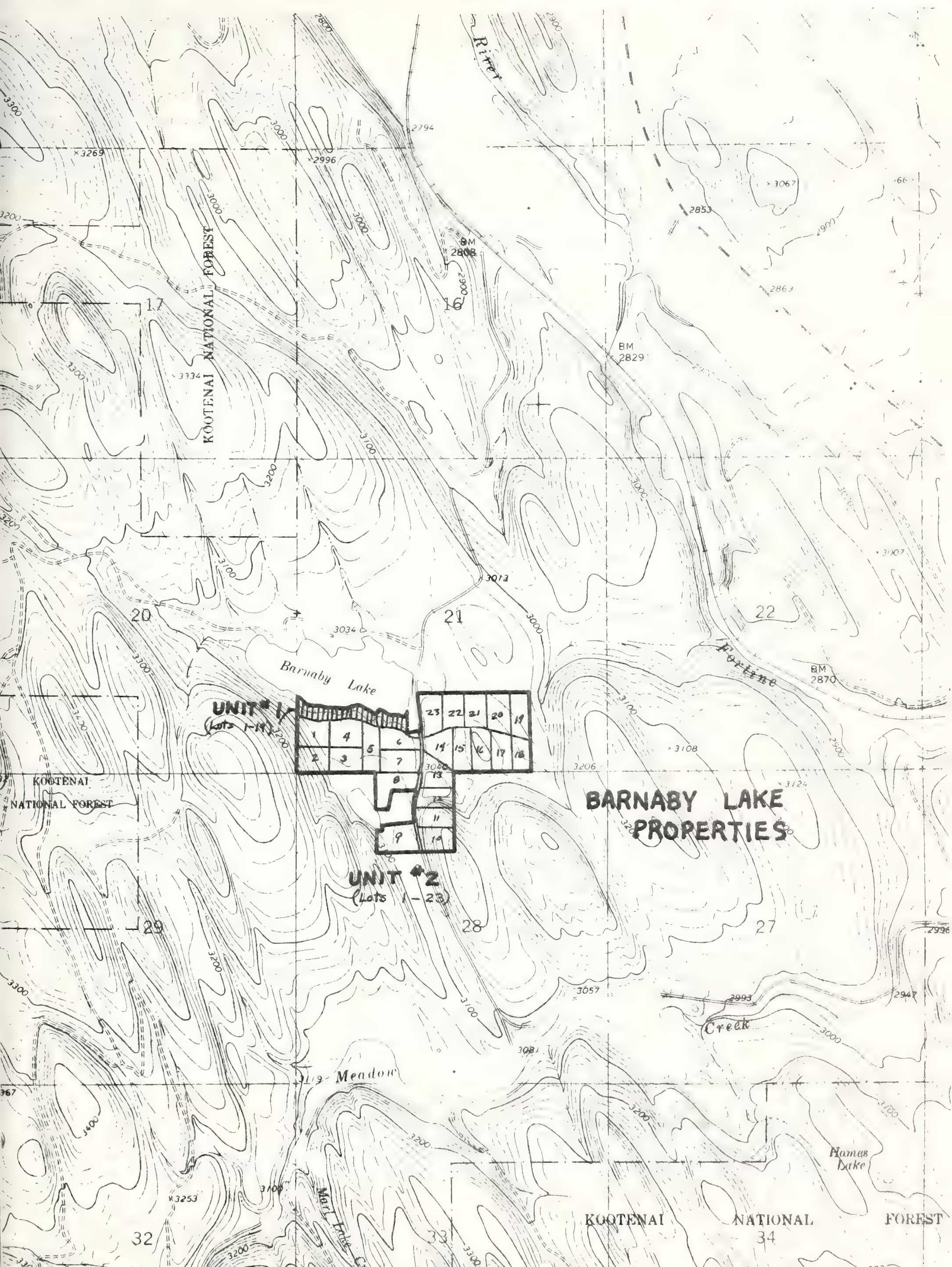
1. Approve one or both Subdivision Plats as soon as all statuatory and regulatory requirements of the Montana Subdivision Law and the Montana Environmental Quality Act are met.

2. Request that the developer redesign or delete any part or portions of the subdivision plat which are found (through knowledgeable response to this statement) to be at variance with the environmental facts and planning statements submitted by the developer.

3. Deny approval of one or both Subdivision Plats owing to noncompliance with the Montana Subdivision Laws and Regulations.

Action is considered Significant because of the magnitude of the project, the existing undeveloped natural character of the area, and the implied commitment of land, wildlife, water quality and forestry potential.

This Draft Impact Statement was prepared by Wilbur C. Aikin, P.E., a Public Health Engineer from the staff of the Montana State Department of Health & Environmental Sciences. Data used in the compilation of the brief was gained from field investigation, personal communications with people from the area and from the plans, specifications, or statements of information supplied by D. Marquardt, P.E., Kalispell Montana, Project Engineer for the developer.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UNIT #2 (Lots 1-23)
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BARNABY LAKE PROPERTIES
Creek
Meadow
Hamas Lake
Marl Lake Cr

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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

MAY 13 1974

May 10, 1974

Honorable Thomas Judge, Governor of Montana, Helena
Don Brelsford, Brelsford & Associates, P. O. Box 1252, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Morrison-Maierle, Inc., 910 Helena Avenue, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
Department of Highways, Helena
Ronald Schleyer, Lee State Bureau, 317 Allen, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Assn., 526 North Bozeman Ave., Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13 Avenue, Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard C. Ritter, Box 1170, Bozeman
James Posewitz, Department of Fish and Game, Helena
Gallatin National Forest, Supervisor, Federal Building, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Doris Milner, Montana Wilderness Assn., Route 1, Box 1410, Hamilton
Ed Mohler, The Gallatin County Tribune, 201 E. Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, Larry Uman, University of Montana, Missoula
Gallatin Canyon Study Team, Montana State University, Bozeman
Beaver Creek South, Inc., 24 South Willson, Bozeman
Jim Goetz, 15 South Tracy, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman
Rick Applegate, Box 931, Bozeman
Brace Hayden, School of Forestry, University of Montana, Missoula

Gentlemen:

An agency has requested the permitted fifteen-day extension of the deadline to receive information and comments on the draft environmental impact statement for Beaver Creek South Subdivision in Gallatin County, Montana.

The termination date for receiving comments and/or additional information for this project will now be extended to May 23, 1974.

Very truly yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh

cc: Dan Vichorek

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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

APR 10 1974

April 8, 1974

Honorable Thomas Judge, Governor of Montana, Helena
Don Brelsford, Brelsford & Associates, P. O. Box 1252, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Morrison-Maierle, Inc., 910 Helena Avenue, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
Department of Highways, Helena
Ronald Schleyer, Lee State Bureau, 317 Allen, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North Bozeman Avenue, Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13 Avenue, Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard C. Ritter, Box 1170, Bozeman
James Posewitz, Department of Fish and Game, Helena
Gallatin National Forest, Supervisor, Federal Building, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Ed Mohler, The Gallatin County County Tribune, 201 East Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, Larry Uman, University of Montana, Missoula
Gallatin Canyon Study Team, Montana State University, Bozeman
Beaver Creek South, Inc., 24 South Willson, Bozeman

Gentlemen:

The enclosed environmental impact statement has been prepared for Beaver Creek South Subdivision in Gallatin County, Montana. This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of this statement. An additional 15 days is available on request. All comments should be sent to the undersigned.

Sincerely yours,

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Dan Vichorek through Ben Wake

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

E.S. 74/85 April 8, 1974

A Draft Environmental Impact Statement
for
BEAVER CREEK SOUTH,
a proposed subdivision in Gallatin County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 4827, the following statement was prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences for Beaver Creek South, a proposed subdivision in Gallatin Canyon, for which a submittal has been received requesting subdivision plat approval.

Location

This project is located approximately seven miles south of the Big Sky of Montana Meadow Village in the canyon of the West Gallatin River. It is situated in the SE 1/4 of Section 17, Township 7 South, Range 4 East, MPM. Beaver Creek crosses a portion of the property for about one-fourth mile along the north side. The right-of-way for U. S. Highway 191 forms the eastern boundary.

Description of proposed project

The owner, Beaver Creek South, Inc., a Montana corporation, intends to divide approximately 95 acres into 72 lots for single-family and multi-family residences and a maximum of 7 1/2 acres along U. S. Highway 191 for a neighborhood commercial area. Following is a table of land use and areas:

PHASE I	
Lots	60.899 acres
Roads	12.468 acres
Open Space and Parks	21.281 acres
	88.456 acres
PHASE II	
Lots	4.560 acres
Roads	0.701 acres
Park	0.931 acres
	6.192 acres

DENSITY AND USE ASSIGNMENT

	Lots	Acreage	Dwelling Units
SINGLE-FAMILY			
Phase I			
Block 2	15	8.7	15
Block 3	17	11.6	17
Phase II			
Block 9	7	4.6	7
	39	24.9	39

	Lots	Acreage	Dwelling Units
MULTI-FAMILY-CONDOMINIUM APARTMENT DWELLINGS			
Phase I			
Block 1	6	5.5	44
Block 4	7	3.8	23
Block 6	4	2.1	8
Block 7	7	6	48
Block 8	4	12	12
	28	29.4	135
NEIGHBORHOOD COMMERCIAL			
Phase I			
Block 5	5	7.5	0
TOTAL	72	61.8	174

An environmental assessment report has been prepared by Brelsford and Associates of Bozeman, Montana. The report is hereby included as part of this draft environmental impact statement.

Beaver Creek South, Inc., a Montana Corporation, with offices at 24 South Willson in Bozeman, is the owner of about 95 acres of the SE 1/4 of Section 17, T7S, R4E. The company is planning the development of a residential subdivision on this land. Use of the lots will include single-family and multi-family residence and no more than 7 1/2 acres along U. S. 191 for a neighborhood commercial area.

Beaver Creek crosses a portion of this land for about 1/4 mile along the North side. In general, evergreen trees, willows and other brushes provide vegetative cover along Beaver Creek for about 150 ft. distance on both sides of the stream. It has been estimated by the Soil Conservation Services (USDA) in 1972, that the annual discharge of Beaver Creek is about 9,000 acre feet. This stream has some trout fish in evidence, with a probable size limit of about 12 inches. The evergreen trees and brush cover along Beaver Creek provides excellent protection and cover for the wildlife including deer. In addition, stream side willows and brush provide cover and shelter for the trout.

The land use plan for Beaver Creek South will protect the existing natural condition of Beaver Creek by covenants and natural open space dedication of a parkway, that is 300 ft. wide along the stream. No buildings will be permitted within this parkway nor will any of it be plotted, into lots. This parkway as well as the other natural open space and recreation areas, will be owned in common and maintained by the property owners association, Beaver Creek South Association. The overall open space and recreation areas for Beaver Creek South will make up over 22% of the development.

This land has been recently used for grazing purposes, is undeveloped, with relatively good habitat for wildlife. Other physical features of the land include the alluvial fan of Beaver Creek which covers the northern one-quarter of the property and is essentially void of vegetative cover other than sage brush that averages 2 to 3 feet in height. The Eastern one-third of the property borders U. S. Highway 191 for about 3/8 mile, has vegetative cover very similar to the northern part, (i.e. sage brush and grass) with a gentle slope toward the south. The remaining one-third of the property (the SW corner) contains a hill that slopes to the north and to the east, however, this property will not be subdivided. The vertical height of this hill is about 350 ft. above the lower, relatively flat land to the east and north. Vegetative cover on the hill is predominantly evergreen of moderate thickness with a typical height of 50 feet or more. Throughout the evergreen trees are grassy open areas of varying sizes up to about 3 acres as well as several aspen groves of up to 3 acres in area. Generally speaking, the type of vegetation cover found on this hill is good habitat for grouse, deer and possibly other wildlife. Development planning and architectural control will be maintained by the property owners association and land use covenants to reduce to the greatest extent possible, the impact on the disruption of the natural environment of the subdivision. A copy of the land use covenants of the Beaver Creek South Association is available in the Helena office of the Water Quality Bureau.

There are two potential sources of groundwater for the Beaver Creek South Development. These are, (1) the alluvial gravels associated with the Gallatin River and (2) the Kootenai formation of lower Cretaceaus age which is known to underlie the entire area of the development at an approximate depth of 100 to 150 feet.

From the "General Soils Maps and Soils Interpretation" by J. A. Olsen, et. al. of Montana Agricultural Experiment Station in Bozeman, the subject Beaver Creek South property contains three basic types of soil associations: (1) Bigel-Hobacker on the relatively flat lands on the north and east sides of the property; (2) Leavitt-Hanson on the near hill top slopes of grade 20% and less, and (3) Leavitt-Loberg on the lower steep slopes of the hill facing north and east with grades from 20 to 40 percent.

The Bigel-Hobacker Association is well drained, gravelly and cobbly soils and shallow gravelly soils. These soils are found on the nearly level terraces of the Gallatin River and the fan of Beaver Creek, a main Tributary. These soils are suitable, with only slight possible limitations, for foundations for low buildings, with or without basements, and show only slight possible limitations for roads, parking, lawns and landscaping. It is upon this soils association that the planned multi-family residences will be built. Also, the development sewage treatment plant and filter ponds will be located on these soils where possible limitations for this use are judged to be slight to moderate in the above referenced General Soils Map of Gallatin Canyon.

The Leavitt-Hanson association is deep, well drained, stony loam soils. These soils are found on the 0 to 30 percent slopes at or near the top of the hill and on its upper north facing slopes. Moderate limitations are possible for foundations of low buildings on this soil association, particularly where the slope is excessive grade. There is no part of this planned subdivision that has been or will be laid out on the Leavitt-Hanson association of soil type.

The Leavitt-Lobert association is well drained, strong loam and clay soils. At Beaver Creek South, this soils association is found on the middle, steeper slopes of the hill on the SW of the property. Development limitations on this soil is very similar and moderately greater to those expected with the Leavitt-Hanson association. The Leavitt-Loberg association soils are located on the north and east facing slopes where the grade is from 30 to 50%. There is no part of this planned subdivision that has been or will be laid out on the Leavitt-Loberg association of soil type.

In May, 1973, twelve, 10 ft. deep soil test pits were dug at various locations on the subject property. The primary purposes of these pits was to determine if the groundwater in the spring would be within 10 ft. of the surface. No groundwater was found at any of the pits. In general, the loamy top soil was found to be 12 to 18 inches deep, and the various soils below were generally, cobbly, gravelly, deep and well drained. In the SW corner of the property, the soils were found to be sandy, gravel type with only a limited amount of clay material. Percolation tests at this location indicated their suitability for location of the filtering ponds for the effluent of the sewage treatment plant for Beaver Creek South.

A report on "Potential Water Sources" has been prepared by Donald Alford, Geophysical Consultant. It is hereby included as part of the draft environmental impact statement.

It is the purpose of this report to discuss the potential sources of water supplies for the development at Beaver Creek South, located in the Gallatin Canyon immediately south of the confluence of Beaver Creek with the Gallatin River in the southeast corner of Section 17, T S, R. E., Gallatin County, Montana.

This report will concern itself primarily with a discussion of the potential for the development of sufficient water supplies from the surficial geological materials to supply the domestic needs of the development and is not considered to be a complete hydrologic evaluation of the development. The discussion is based primarily on an examination of the near surface characteristics of the geologic materials in the area and their relationships to the surface drainage pattern of this portion of the Gallatin Canyon. Since no drilling program has as yet been undertaken by the developers at the site, the thickness of the geologic formations which are considered to represent the best source of water, is conjectural.

Geology

This discussion of the geology of Beaver Creek South is taken largely from Hall (1961), modified to some extent by observations of this writer.

The area occupied by Beaver Creek South is presumably completely underlain by the Thermopolis Shale which is Cretaceous in age. Hall (1961, P. 66), states that:

> "Overlying the upper sandstone member of the Kootenai (lower Cretaceous) with apparent conformity are some 150 feet of medium to dark gray, very fissile carbonaceous shales and unevenly bedded siltstones, possibly of non-marine origin. This shale has previously been included by others as the lowest member of the "Colorado shale" which includes rocks of both Early and Late Cretaceous age. This shale may be the terrestrial or brackish-water equivalent of the marine Thermopolis shale of Wyoming and is tentatively so considered on the basis of stratigraphic position and lithologic similarlity."

The Kootenai formation, which underlies the Thermopolis shale in the area, is some 400 feet thick (Hall, p. 64), and consists of interbedded non-marine conglomerates, claystones, fresh-water limestones and sandstones.

The dip of these formations in the study area is gently (approximately 5°) northward to northeastward.

Locally overlying the Thermopolis (?) shale within the study area are a variety of Quaternary surficial deposits including those produced by gravity movements

(Qls, see attached map) and the alluvium deposited by Beaver Creek (Qalb) and the Gallatin River (Qalg). The Gallatin River alluvium and the Beaver Creek alluvium have been differentiated on the basis of a series of test pits excavated to a depth of 8' to 12' at 12 sites in the study area. The Gallatin River alluvium, which composes the surficial deposits in the southeastern corner of the development, consists of interbedded, well-sorted gravel and sand with thin, intermittent clay lenses. No evidence of clay was found within the gravel and sand layers. The Beaver Creek alluvium, on the other hand, was found to consist of very poorly sorted detritus, ranging in size from boulders greater than 25 cm in diameter to a fairly spatially uniform clay matrix. It is felt that, while the permeability of the Gallatin River alluvium will be uniformly high throughout the study area, that of the Beaver Creek alluvium will have a high local variability, depending primarily on the percentage content of the clay fraction. There was some indication from the test pits that the clay content of the Beaver Creek alluvium decreased from east to west but no tests were conducted to quantify this impression.

No attempts were made to determine the lithologic character of the landslide deposits (Qls) since it is not felt that they would contribute significantly to the water supplies of the area although their hydrologic characteristics may be of some significance in determining their present stability.

Hydrology

The primary water resources of the area are represented by surface flows in Beaver Creek and the Gallatin River together with an unknown quantity of groundwater which is presumably contained in the Kootenai formation. It has been estimated by the Soil Conservation Service, Dept. of Agriculture (1972) that some 350,000 acre-feet of water represents the total mean annual flow of the Gallatin River at the mouth of the West Fork, a few miles downstream from the confluence of Beaver Creek with the Gallatin River. This same source gives 9,000 acre-feet as the annual discharge of Beaver Creek. It is presumed that the near-surface (i.e., those contained in the Quaternary alluvium) groundwater resources of the study area are intimately connected to the surface stream flow past the site. Because of the apparent high permeability of the Gallatin River alluvium and the large volume of annual surface flow, it is suggested that this unit represents the most probable source of developable water supplies of the quantity required by Beaver Creek South. The only qualification given to this statement is that the total depth of the gravels is not known at this time and they must extend to below the elevation of the Gallatin River to be productive. A minimum thickness of 30' is felt to be required. Locally, the Beaver Creek alluvium should yield water but the quantities will be much smaller due to lower transmissibility of the unit in general and the greater local variability of this characteristic.

The second potential source of water for the development is an upper sand member of the Kootenai formation, which, while it is nowhere exposed in the study area, is presumably present at depth of 100 - 150'. This member of the Kootenai formation is a productive acquifer almost everywhere it is encountered in the State of Montana and very large sections of the State are dependent upon it for water supplies. Water derived from the Kootenai formation may have a high dissolved mineral content which may include iron, calcium, etc. The entire 400' thickness of the Kootenai formation is a potential water source, depending upon local condition of permeability.

REFERENCES CITED

Hall, W. B., (1961) - Geology of Part of the Upper Gallatin Valley of Southwestern Montana, Unpub. Ph.D. dissertation, Department of Geology, University of Wyoming, 239 pp. with maps and illus.

Farnes, P.E., and Shafer, B. A. (1972) - Hydrology of Gallatin River Drainage, Soil Conservation Service, U. S. Department of Agriculture, Box 970, Bozeman, Montana, 28 pp. with maps.

In addition, Donald Alford prepared a report on factors influencing slope stability, and his concluding remarks are hereby included in the environmental impact statement.

General Conclusions

The Gallatin Canyon area of Montana is characterized by virtually every type of mass-movement which is known to occur. These include rockfalls, rockslides, talus deposits, rapid and slow slumpage, earthflows and mudflows. It is apparent that if all development were proscribed in and near areas of mass-gravity movements, not even a road would now exist in the Canyon.

It appears that a majority of the geomorpic features recognizeable as mass-gravity phenomena are quasi-stable under present environmental conditions which exist in the Gallatin Canyon. Most of them are presumably remnants of past periods of increased water availability at the surface, either from glacier melt or periods of increased precipitation. Some are undoubtedly the result of the 1959 Hebgen Lake earthquake. Certainly, there is no uniform state of conditional instability which would allow the development of regionally valid criteria for the determination of the type of construction which is possible on any given slope.

The effects of human activities is equally indeterminate. While the construction of roads and buildings may constitute a sufficient cause for the initiation of slope instability, this is by no means a foregone conclusion. Under certain conditions, primarily when these activities result in a decrease in soil moisture, construction may even contribute to slope stabilization. It is quite likely that the construction of roads across convex slopes will probably invariably result in some slumping but, given a certain amount of care, this type of surface morphology can be avoided. This is primarily an engineering problem except in areas when some type of movement is occurring under natural, unmodified conditions.

Two wells have been drilled on the property. One is at a depth of 52 feet and has been rated at 52 gallons per minute. The other is 43 feet and rated at 60 gallons per minute. The well logs read as follows:

Depth (Feet)			Depth (Feet)		
From	To	Formation	From	To	Formation
0	9	Clay	0	2	Topsoil
9	20	Very dirty gravels with large rocks	2	26	Loose claybound sand - gravel to rocks
20	28	Dirty gravels - rocks	26	40	Sands
28	52	Red Shale	40	43	Porais rock

It is anticipated that no single well will serve more than eight dwellings or more than 24 persons, thus avoiding any public water system regulations. A property owners association would be responsible for maintenance of the systems.

Can-Tex Industries' diffused air type sewage treatment units are proposed. BOD and suspended solids should be reduced 80 to 90 percent and fecal coliforms reduced to 200 per 100 milliliters, thus affording the equivalent of secondary treatment. Plans and specifications for these sewage treatment units are available for inspection in the Helena office of the Water Quality Bureau. Wastewater disposal would be through the use of rapid infiltration ponds. Morrison-Maierle, Inc., consulting engineers, provided the following concerning the proposed disposal system:

Two percolation ponds are proposed, each containing about 20,000 square feet of bottom area. The percolation area will be topsoiled and planted to Reed Canary grass. Maximum dosing rate of secondary treated effluent would amount to approximately 0.10 ft/day (0.75 gal/sq.ft./day) under initial development to 0.466 ft/day (3.50 gal/sq.ft./day) with ultimate development. The average dosing rate would be 1/2 these values.

Reed Canary grass is a hearty plant that can withstand large quantities of water. The grass is being used primarily for nutrient removal; however, improved percolation is a secondary benefit. Tests have shown that the infiltration rate can be 25% higher in a grass covered basin that in a bare soil basin.

High percentages of phosphate removal are expected through plant uptake and adsorption by soil particles. The depth of soil column to the groundwater is more than generous for this purpose.

Nitrogen removal is probably the item of most concern and will require some care in operation and management to accomplish desired results. The direct uptake of nitrogen by the grass roots for Reed Canary grass is estimated to be about 200 pounds per acre per year. (U.S. COE Special Report 171, May, 1972 states 226 pounds per acre per year for Reed Canary Grass). Possibly more significant than plant uptake is nitrogen removal by biodenitrification, an anaerobic process whereby nitrates are reduced mainly to nitrogen gas which escapes to the atmosphere. Studies conducted by Herman Bouwer at the Flushing Meadows Project in Arizona determined that this nitrogen removal process contributed to the largest portion of nitrogen removed. However, they were loading the percolation ponds at extreme rates, averaging about 7 1/2 gallons per square foot per day which contributed for more nitrogen than the grass roots could possibly take up.

High percentages of nitrogen removal do not take place with frequent, short inundation periods when complete aerobic conditions prevail. However, there is significant nitrogen removal for longer inundation periods when oxygen is limited allowing denitrification of the nitrates present. Since the loading rates at Beaver Creek South will be considerably less than the regular high rate percolation ponds, it is expected that a higher percentage of the nitrogen removal will be by plant uptake. However, during the winter months the denitrification process along with adsorption by the clay fraction, would play a more important role.

Careful scheduling of inundation and dry-up periods of the percolation ponds is important to achieve the highest degree of nitrogen removal. Longer inundation periods are desirable for nitrogen removal in grassed basins where nitrogen loadings exceed uptake capacities of the grass. Dry-up periods, however, are necessary to allow oxygen to enter the soil for the aerobic bacteria that decompose the organic waste matter and to obtain a recovery in the infiltration rate.

Numerous wastewater facilities across the country are successfully utilizing percolation ponds or other methods of surface disposal of treated wastewater. Following is a brief summary of data collected from some of these facilities as related to loading rates, nutrient removal efficiences and other pertinent information.

1. FLUSHING MEADOWS PROJECT - Phoenix, Arizona.
Reference - "Water Quality Aspects of Intermittent Systems Using Secondary Sewage Effluent" by Herman Bouwer, U. S. Water Conservation Laboratory, Phoenix, Arizona.

(a) Grassed percolation ponds (Bermuda Grass).
(b) Soil profile - 3 feet fine loamy sand underlying by coarse sand and gravel.
(c) Depth to water table = 10 feet.
(d) Infiltration Rates = 1 to 3 feet/day (7.5 to 22.5 gal/sq.ft./day).
(e) Wastewater applied - secondary effluent.
(f) With inundation periods of 2 to 3 weeks the nitrogen was reduced between 1 and 3 mg/l at 20 foot depth test wells located 100 feet from the percolation ponds. Phosphates average about 1.5 mg/l at the same test wells.

2. ROBERT A. TAFT WATER RESEARCH CENTER - Cincinnati, Ohio.
Reference - "Soil Systems for Liquid Waste Treatment and Disposal: Environmental Factors" by Warren A. Schwartz and Thomas W. Bendixen, WPCF Journal, April 1970.

(a) Lysimeter studies with and without vegetation.
(b) Vegetation used - Reed Canary Grass.
(c) Soils - Ottawa silica sand and Downs silt loam.
(d) Unsaturated depth of soil - 5 feet represents an adequate depth in most situations.
(e) Wastewater applied - Secondary Trickling Filter Effluent.
(f) At loading rate of 1 gal/sq.ft./day on bare soil, phosphorous removal was 98%, ammonia nitrogen 96%, and total nitrogen 48%.
(g) At loading rate of 1 gal/sq.ft./day on Reed Canary grass, phosphorous removal was 99%, ammonia nitrogen 96% and total nitrogen 85%.
(h) Vegetation on soil surface increases hydraulic longevity by a factor of 2.
(i) Biological treatment is the main victim of cold weather. The adverse effects of cold weather operations can be overcome by achieving biological maturity in the system prior to the onset of the cold season.
(j) Over 99% of plant nitrates and 92% of the total plant nitrogen is lost to the atmosphere when the grass is burned.

3. SAN FRANCISCO BAY, CHICAGO - SOUTH END LAKE MICHIGAN, SOUTHEASTERN MICHIGAN, CLEVELAND-AKRON METROPOLITAN AND MERRIMACK RIVER BASIN AREAS -
Reference - "Assessment of the Effectiveness and Effects of Land Disposal Methodologies of Wastewater Management", Wastewater Management Report 72-1, U. S. Army Corps of Engineers, January 1972.

(a) Wastewater Applied - Secondary Effluent.
(b) Rapid Infiltration Ponds - Design loadings suggested up to 330 ft/year (6.8 gal/sq/ft./day average).
(c) Removal of BOD and SS in Rapid Infiltration Ponds is very effective - over 99%.
(d) Rapid Infiltration Ponds with grass - field results: Case 1 - Application = 3 feet/day (22.5 gal/sq.ft./day) 14 day infiltration, 14 day rest, silty sand soil with 2% clay, total nitrogen removal = 80%, phosphate removal = 62%.

Case 2 - Application = 4.5 feet/day (34.5 gal/sq.ft./day) 6 month infiltration, 6 month rest, sandy soil with 0% clay, total nitrogen removal - 92.4%, phosphate removal = 92.5%.

(e) Estimated Effectiveness of Rapid Infiltration Ponds - Application - 330 ft/year (6.8 gal/sq.ft./day) 10 days infiltration, 4 days rest, sandy gravel soil with continuous vegetation, nitrogen removal = 80%, phosphate removal = 90%.

(f) Volatilization of nitrogen gases through biological nitrification - denitrification remains the major mechanism of nitrogen removal in Rapid Infiltration Ponds.

(g) An increasing clay content in the soil will increase denitification and nitrogen and phosphate removal by adsorption.

(h) The nitrogen removal in rapid infiltration ponds is mainly governed by the period the basin is inundated. A longer period gives a better balance between aerobic and anaerobic conditions necessary for nitrification-denitrification. However, prolonged inundation periods, which create permanent anaerobic conditions, should be avoided.

4. MISCELLANEOUS PROJECTS -

Reference - "EPA Studies on Applying Sludge and Effluent to the Land", by Curtis C. Harlin, Jr.: Chief, National Water Quality Control Research Program; Robert S. Kerr, Environmental Research Laboratory, EPA, Ada, Oklahoma, Compost Science, July-Aug., 1973.

INFILTRATION-PERCOLATION STUDIES -

(a) Four projects studied in the southwestern states and 2 projects in the north central states.

(b) Denitrification in the soil plays a major role in obtaining nitrogen removal.

(c) Results of the colder north central states projects were similar to those observed in the southwest although climatic and soil differences necessitates different rates of loadings.

(d) Short flooding and drying cycles resulted in high nitrate concentrations in the groundwater immediately under the percolation site.

(e) Longer flooding periods resulted in total nitrogen removal at one north central site of 70% and 80% near Phoenix.

(f) Quote - "Our experiences from these projects indicate the infiltration-percolation approach can be utilized effectively to achieve specified levels of tertiary treatment at selected sites".

5. OVERVIEW -

Reference - "Wastewater Treatment and Reuse by Land Application" - EPA - 660/2-73-006a, August, 1973.

INFILTRATION-PERCOLATION PONDS -

(a) Infiltration Rates - Moderate = 4" to 60" per week (.35 to 5.5 gal/sq.ft./day). High rate = 5' to 10' per week (5.5 to 11 gal /sq.ft./day).

(b) Soils with infiltration rates of 4" per day to 2 feet per day, or more, are desirable for percolation ponds.

(c) Phosphorous removals generally range from 70 to 90 percent depending on physical and chemical characteristics of the soil that influence retention of phosphorous.

(d) Nitrogen removals are generally poor unless specific operating procedures are established to maximize denitrification.

(e) Increased nitrogen and phosphorous can be removed with vegetation through plant uptake with harvest.

(f) At Lake George, New York, phosphorous retention in some percolation ponds appears to have been exhausted through 10 feet of soil. The system has been operating about 35 years at moderate rates of 7 to 15 inches per week.

(g) At Lake George, the snow and ice do not present serious problems. As the basins are flooded, the ice floats 7-8 inches and serves to insulate the soil surface from further lowering of temperature.
(h) Infiltration-Percolation, Use in cold climates - excellent.

6. PENN STATE PROJECT -
Reference - "Crop Selection and Management Alternatives - Perennials", by William E. Sopper, Penn State University, Proceedings of the Joint Conference on Recycling Municipal Sludges and Effluents on Land, July, 1973.

(a) Perennial grasses appear to be the most suitable for wastewater disposal.
(b) Secondary effluent applied to Reed Canary grass, all seasons.
(c) Average application - 2 inches per week 1965-1970.
(d) During 6 year period, 2127 pounds of nitrogen were applied to Reed Canary Grass. A total of 2071 pounds were removed in the harvested crop, resulting in a renovation efficiency of 97.3%.
(e) Annual renovation efficiencies on phosphorous varied from 24 to 63 percent.
(f) Quote - "In summary, it appears that there is sufficient evidence to indicate that perennial grass management systems are adaptable to municipal wastewater, ----- and that the wastewater can be satisfactorily renovated."

7. OVERVIEW -
"Treatment Processes and Environmental Impacts of Liquid Waste Disposal on Soil", by Eugene B. Welch and Demetrios E. Spyridakis, Fourth Annual Environmental Engineers' Conference, Montana State University, February, 1973.

(a) Plant uptake of phosphorous and nitrogen combined with biological and chemical immobilization of phosphorous and volatilization of nitrogen through biological and/or chemical denitrification, and escape of ammonia from alkaline soils, and nitrate leaching provide the main mechanisms for nitrogen and phosphorous removals from soil solution.
(b) 80-90% nitrogen removals by soil systems are indicated by values obtained the last 15-20 years in comparable experimental systems under a variety of environmental conditions.
(c) Efficiencies of nitrogen removal may be increased (greater than 90%) and maintained for many years by additions of organic carbon.
(d) A high carbon-nitrogen ratio will accumulate nitrogen in the soil minimizing loss through leaching. Increased soil organic matter will also maintain or improve soil structure, increase the potential for plant uptake and aid aeration and water flow processes.

8. SUMMARY REPORT -
"Project Report of Pilot Studies on the Use of Soils as Waste Treatment Media" (1962-1967), by Warren A. Schwartz, Thomas W. Bendixen, and Richard E. Thomas, FWPCA, July, 1967.

(a) Vegetation on soil - Reed Canary grass and soil removed 85 percent of the total nitrogen dosed, vs. 48% for bare soil.
(b) Burning of the grass resulted in 91.7% of the total nitrogen lost to the atmosphere.
(c) Cold temperatures tend to suppress biological activity in the winter, but also produce several other effects. Snow or ice can serve as insulation for the surface, for ice frequently forms a bridge over the surface, with the ponded liquid infiltrating out from under it.
(d) Nitrification is suppressed with cold weather startup of infiltration systems. Summer startups provide a more mature biological system resulting in better overall seasonal removals of total nitrogen.

Assuming a total nitrogen concentration in the secondary effluent at Beaver Creek South of 20 mg/l, the total annual nitrogen applied would amount to about 910 pounds at the initial development (design flow = 15,000 gpd) and about 4,250 pounds at ultimate development (design flow = 70,000 gpd). Plant uptake for Reed Canary grass would remove perhaps 200 pounds per acre. To provide the necessary area for complete plant uptake of the nitrogen would require in excess of 20 acres at design flows, which is beyond the limits of a percolation pond. Biological nitrification-denitrification and adsorption must then be relied upon to remove the larger portion of the nitrogen.

It is proposed that the percolation ponds be inundated and dried on 14 day cycles. The rise or mounding of the groundwater table as a result of this disposal system is expected to be insignificant.

In addition to improving nutrient removal and providing better percolation capabilities, the Reed Canary grass will provide additional benefits in reducing water content through evapotranspiration. The grass vegetation will also offer some protection against freezing.

Two percolation ponds of 20,000 square feet each are planned for both initial and ultimate development. Dosing rates at ultimate development would still be low compared to rates commonly used. However, additional percolation pond area can be added after gaining operating experience, if it is determined that the additional area will benefit treatment.

It should be noted that the proposed method of wastewater disposal is still under review by the Water Quality Bureau.

Probable Impacts of the Project on the Environment

Impacts from development of this property would undoubtedly fall within the range associated with the residential use of a mountain valley. A visual impact would certainly result from the proposed development. The severity of this visual impact is purely speculation and the desirability is a matter of personal aesthetic values.

The proposed development could have a minor long-term unavoidable adverse impact on air quality, from particulates (dust) and automotively-produced pollutants. Emissions from the heating plants would contribute to the minor impact on air quality. However, it should be noted that continued development of scattered tracts in the canyon of the West Gallatin River would eventually have a greater impact on air quality.

The Montana Fish and Game Department has offered the following comments with respect to the proposed development:

One of our greatest concerns with developments within Gallatin Canyon is the destruction of wildlife range. Any development in this area destroys the potential of maintaining wildlife in their existing numbers. The Beaver Creek South sub-division is no exception and will reduce the carrying capacity of the area for wildlife. For example, the proposed sub-division and the immediate area currently winters in the vicinity of ten elk plus deer, moose and game birds use the area during different times of the year.

The other factor related to wildlife when establishing a sub-division is the fact that people concentrations tend to change the use of much more area than just where they physically live. For example, at the present time people living on the south end of the Gallatin Game Range plus the trustees of the Ophir Grade School complain about hunting on the Game Range. The Gallatin Game Range was purchased by Montana Sportsmen for raising elk and other wildlife and hunting. This purchase was made before any extensive development occurred in the area and people who later built in the area knew it was a Game Range. Yet, now they are complaining about hunting. This reminds me of people who build close to an airport and then complain about the airplane noise. The Beaver Creek South sub-division is also located adjacent (The Montana Fish and Game owns the rest of Section 17) to the Gallatin Game Range and in the future people will no doubt attempt to change the long established hunting use of a large part of the general area. A few people may have an effect on the entire Montana hunting public. This same problem can be further pointed out by a proposal by The Big Sky Corporation to make a large portion of the West Fork of the Gallatin River a game refuge and allow no hunting.

The report you furnished indicated there would be a central sewage treatment facility but no real details were available. I cannot really accept or reject this method of sewage treatment until more details are available. Unless at least tertiary sewage treatment is planned, it is my feeling that in time water quality degradation will occur in the watercourse in the area even though the seepage ponds are located quite far away from either stream.

A statement on the community impact was prepared by Brelsford and Associates and is included here as part of the environmental impact statement.

Beaver Creek South, when fully developed, will include 200 dwelling units. The first phase of the development will include a maximum of 180 dwelling units.

On September 19, 1973, a call was made to Mr. Bob Sewall, engineer for the Montana Telephone Company in Big Timber, MT. which serves the Big Sky area with telephone service. A request was made for written confirmation of their company's ability to supply adequate and necessary telephone service to the 200 dwelling units of Beaver Creek South.

Montana Power Company (Mr. Dick Johnson) was also contacted to confirm the availability of electric power for lights, heating and 3/60/440 power for the sewage treatment plant. Mr. Johnson said there would be "no problem" in supplying the needs of the anticipated numbers of residents of Beaver Creek South.

A telephone conversation was held with Mr. Jerry Beagley, State Forester for the Bozeman area, to determine the availability of fire fighting assistance in the Big Sky area. There is a forest fire district in that area for fighting wild fires. These are the responsibility of the State and Federal Forest Services. For structural fires of commercial and residential buildings, a rural, volunteer fire district has been organized in the Big Sky area. They have operated for about two years and have a fire truck that was noted by Big Sky of Montana, Inc. Other equipment and supplies are provided for by donations and fund raising activities.

A statement from Big Sky of Montana, Inc. asserts their support of the proposed development and is hereby included as part of the environmental impact statement.

Big Sky at the present time has considerable difficulty arranging for employee housing of its employees. This does not take in to account the additional housing problems faced by other persons employed in the Big Sky area by contractors, sub-contractors and commercial lessees doing business at the Big Sky project.

At the present time there is in excess of 600 people employed in the Big Sky area including the Big Sky personnel and those employed by others. At total build-out, Big Sky is expected to carry approximately 1000 full time employees in its payroll which will be augmented by construction personnel and other individuals employed by third parties. Big Sky presently has plans to complete in two phases, housing accommodations for approximately 176 employees in the Mountain Village and has already completed an employee housing facility for 50 people in the Meadow Village. Additionally, Big Sky has just completed a 42-pad mobil home park. If an estimate of three persons per trailer is made, we therefore will have a total of 342 accommodations for people in the Big Sky project. We are, therefore, seriously short of housing accommodations for employees and workers at Big Sky even at the present time. This, of course, does not include those persons who buy condominiums and/or lots within Big Sky--this number is expected to be relatively small in comparison with the total number of people for whom accommodations will be needed.

Because of the unavailability of housing facilities in the future for a rather significant number of people, we certainly do welcome plans for the same to be provided by others with proximity to the Big Sky project--so long as they are compatible with the existing quality and architecture in the area. From what you have told me of your project, this certainly will be the case and we can only say that we wish to encourage you with your program and the sooner you can offer this type of residential--apartment housing, the sooner we will receive some relief from our employee housing problems.

Of primary concern is the effect the proposed subdivision would have on water quality. The primary source of potential water degradation would be from disposal of wastewater from the sewage treatment plant. This was discussed in the section on sewage disposal.

Alternatives available to this department

1. Approve the subdivision plat as submitted. From the data submitted, the department must give serious consideration to this alternative. Adequate evidence that a water supply that is sufficient in terms of quality, quantity, and dependability has been given. Approved solid waste facilities are available.

   A central sewage system is planned. When it is determined what pond area and dosing rates of wastewater from the sewage treatment would insure the quality of ground and surface waters, then the proposed development would appear to meet the concept criteria required by MAC 16-2.14(10)-S14340 and Section

69-5001 through 69-5005, R.C.M. 1947. At that time, there would be but one option open to the department and that would be for approval.

2. Refuse to approve the subdivision plat as submitted. When the abovementioned pond areas and dosing rates have been established, the department could not justify the exercise of this alternative. Although there would be adverse environmental effects on wildlife and to many a degradation of the aesthetic quality of the area, no legislative mandate is in effect which would give legal justification for refusing to grant subdivision plat approval based on these grounds.

Short-term/long-term comparisons

Long-term worth is best represented by the intangible value inherent in leaving the land undeveloped for wildlife habitat. In the short-term, the land is most economically valuable as a residential subdivision. Being designed for permanent residences, it would be expected that this proposed development would reduce the pressure for mobile home parks and other residential subdivisions.

Irreversible commitment of resources

There would be a commitment of non-recyclable building materials used in the construction of this development. The land would be broken into a multiplicity of ownerships, which would probably be irrevokable.

Comments

On November 11, 1973, an advertized public hearing on the proposed development was held by the Gallatin County Planning Director and the City-County Planning Board. No public comment was made.

This statement was prepared by Alfred P. Keppner, B.S.F., M.S., Soils Scientist, with information furnished by Brelsford and Associates, Morrison-Maierle, Inc., Montana Department of Highways, Montana Department of Fish and Game and the Gallatin County Superintendent of Schools.

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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

JUN 28 1974

June 26, 1974

Honorable Thomas Judge, Governor, State of Montana, Helena
Don Brelsford, Brelsford & Associates, P. O. Box 1252, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Morrison-Maierle, Inc., 910 Helena Avenue, Bozeman
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
Department of Highways, Helena
Ronald Schleyer, Lee State Bureau, 317 Allen, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North Bozeman Avenue, Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13 Avenue, Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard C. Ritter, Box 1170, Bozeman
James Posewitz, Department of Fish and Game, Helena
Gallatin National Forest, Federal Building, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, University of Montana, Missoula
Montana State Library, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Ed Mohler, The Gallatin County Tribune, 201 Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, Larry Uman, University of Montana, Missoula
Gallatin Canyon Study Team, Montana State University, Bozeman
Beaver Creek South, Inc., 24 South Willson, Bozeman
Consumer Advocate, Governor's Office, Helena

MONTANA STATE LIBRARY
930 East L[illegible]dale Avenue
Helena, Montana 59601

Rick Applegate, Box 931, Bozeman
Joe Sabol, Attorney, 27 North Tracy, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman

Gentlemen:

This final environmental impact statement for Beaver Creek South, a proposed subdivision in Gallatin County, is submitted for your consideration pursuant to the Montana Environmental Policy Act.

If you have any questions or comments, please let us know.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Dan Vichorek
Terry Carmody

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

June 26, 1974
E.S. 74/85

A Final Environmental Impact Statement for BEAVER CREEK SOUTH, a proposed subdivision in Gallatin County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 69-4827, the final environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning the proposed Beaver Creek South subdivision in Gallatin Canyon, for which a submittal has been received requesting subdivision plat approval.

Location

This project is located approximately seven miles south of the Big Sky of Montana Meadow Village in the canyon of the West Gallatin River. It is situated in the SE 1/4 of Section 17, Township 7 South, Range 4 East, MPM. Beaver Creek South, Inc., a Montana corporation, intends to divide approximately 95 acres into 72 lots for single-family and multi-family residences with a maximum of 7 1/2 acres along U. S. Highway 191 reserved for a neighborhood commercial area. Beaver Creek crosses a portion of the property for about a quarter of a mile along the north side. The right-of-way of U. S. Highway 191 forms the eastern boundary.

A draft environmental impact statement was prepared and circulated for the proposed Beaver Creek South subdivision on the 8th day of April, 1974. A 15-day extension to the mandatory 30-day period for accepting comments and questions was requested by the State Department of Natural Resources and Conservation. This extension was granted in compliance with the Montana Environmental Policy Act. Copies of the draft statement, along with a plat and various exhibits are available for public inspection in the Helena office of the Water Quality Bureau.

Response to the draft environmental statement was received from the State Environmental Quality Council, State Department of Highways, Gallatin Sportsmen's Association, U. S. Forest Service, State Department of Natural Resources and Conservation, the Northern Rockies Action Group, Inc., and Dorothy Bradley Applegate.

The Environmental Quality Council offered the following comments:

> *The following comments on your department's EIS for Beaver Creek South subdivision in Gallatin County are offered to assist your agency in refining its EIS process, and, hopefully, to improve the quality of the proposed subdivision.*
>
> *Pages 1 and 2. If the proposed commercial area is intended to cater to neighborhood residents, i.e., residents of the proposed subdivision, why will it not be centrally located rather than along the edge of the subdivision on U. S. 191? Although the highway location may attract more customers, it would be less convenient to residents of the subdivision and would sacrifice some of the aesthetic qualities of U. S. 191 as a scenic highway.*
>
> *Page 7. Careful management is necessary for successful operation of any land disposal system. Who will be responsible for operating the sewage treatment units and percolation ponds? The developer? The property owners? The Department of Health and Environmental Sciences? What qualifications will be required of the operator(s)?*
>
> *Page 11. Eventually, vegetation will rot and decompose. Decomposition products may enter the soil and groundwater systems and result in soil plugging and water contamination. It may be advisable to harvest the reed canary grass from time to time to avoid these problems and to maintain a healthy stand of vegetation.*
>
> *Page 14. Compatibility "with the existing quality and architecture in the area", i.e., Big Sky, would probably but the price of a lot and structure in this subdivision beyond the reach of the average employee of Big Sky. A real question is whether this development will satisfy the housing shortage for Big Sky employees, or will cater to the same class of people that are attracted to Big Sky.*
>
> *In conclusion, a map or a scaled-down plat showing the arrangement of lots, park dedication, commercial area, soil types and filter ponds would have been useful in orienting oneself with the proposed subdivision. We wish to complement the Department of Health on its efforts to obtain pertinent information by consulting with appropriate agencies and individuals prior to circulation of the draft EIS.*

> *Thank you for your efforts toward compliance with the Montana Environmental Policy Act.*

The proposed commercial area is intended to cater to residents of the subdivision, and the highway location is designed to attract other customers. However, there would be only one access approach to U. S. Highway 191, and the commercial area would be served from a proposed frontage road.

Any sewage disposal system that requires maintenance needs careful management. The Beaver Creek South Association, which would be comprised of the lot owners, would be responsible for operation of the sewage treatment plant. A qualified operator would have to be hired to maintain the plant. Since this sewage plant would serve ten or more families, the operator would have to pass an examination and be licensed by the Montana Board for Certification of Water and Wastewater Operators.

The vegetation would have to be harvested from any type of surface disposal system, whether it be an infiltration pond or irrigation system.

Many have suggested that the price of a lot and structure may be beyond the reach of most employees of Big Sky, that the development would not solve the housing problems at the resort complex, but cater to the same class of people that are attracted to Big Sky. This may be a valid statement, but has no bearing on the decision whether or not to approve the plat.

It is agreed that a plat would be useful to one reviewing an environmental impact statement. One was not included in the draft environmental impact statement for budgetary reasons.

The State Department of Highways offered the following comments:

> *Reference is made to your draft environmental impact statement dated April 8, 1974 on the subject subdivision. As pointed out in the statement, this subdivision will generate a large amount of traffic that will utilize U. S. 191.*
>
> *After reviewing the subdivision plat in your office we have the following comments.*

1. *Access to U. S. 191 should be limited to one approach at highway station 894 + 51 ± (Twin Antler Drive).*

2. *The approach at this point should be in accordance with the Montana Department of Highways Approach Standards for Montana Highways. The attached page 26 from this manual illustrates what would be an acceptable approach in this particular situation. It is recommended that 55 MPH speed to used for determining "F".*

3. *With the approach at Twin Antler Drive, there are adequate interior roads to serve the subdivision without allowing any other access to U. S. 191. The commercial area should be served from the proposed frontage road adjacent to U. S. 191.*

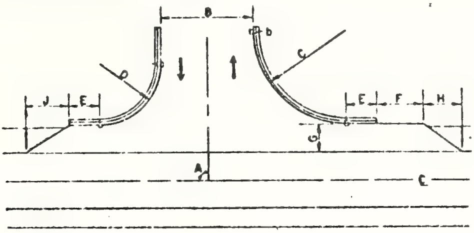
4. *It is requested that future statements include a general location map and a copy of the proposed subdivision plat.*

Thank you for the opportunity to comment on this statement.

It is anticipated that Beaver Creek South Association will comply with the recommendations of the State Department of Highways. A permit is necessary for access to this primary road. It would undoubtedly not be issued if the approach at Antler Drive did not meet specifications.

PUBLIC ACCESS APPROACH
RIGHT TURN LANE & TAPERS

The applicant shall provide right-turn lanes or tapers as part of an approach or driveway system if the department determines that such right-turn lanes or tapers are required to minimize congestion or hazard on the highway caused by vehicles entering the applicant's approach. A right-turn lane shall be preceded by a taper. The design feature dimensions of a right-turn lane and taper shall conform to those shown below.



RIGHT·TURN LANE AND TAPERS

Design Features		Curbed Highway		Uncurbed Highway	
		Standard	Range	Standard	Range
	E	10 ft	no range	10 ft	no range
Right-turn Lane Length	F	* *		* *	
Right-turn Lane Width	G	12 ft	10 to 15 ft	12 ft	10 to 15 ft
Entering Taper	H	150 ft *	50 to 150 ft.	150 ft	50 to 150 ft
Exiting Taper	J	not applicable		50 ft	50 to 150 ft

* If a right-turn lane is used, the Entering Taper standard shall be 50 ft. Without a right-turn lane, the Entering Taper standard shall be 150 ft.

The standard shall be used unless engineering judgment determines that another dimension within the range is more suitable for a particular site or special condition and is approved by the department.

* * TO DETERMINE F

HIGHWAY SPEED M.P.H.	RIGHT TURN LANE F (FT.)	TAPER (FT.)
25	75	50
	0	150
30	100	50
	0	150
35	125	50
40	175	50
45	225	50
50	275	50
55	325	50
60	400	50
65	475	50
70	550	50

The Gallatin Sportsmen's Association sent in the following response to the draft environmental impact statement:

> *We appreciate the opportunity to comment on the draft environmental impact statement for the proposed Beaver Creek South subdivision in Gallatin County. Our main concern is for wildlife, mainly elk, in the area of the subdivision and adjacent to the subdivision.*
>
> *Wildlife provide a major source of recreation in the Gallatin. Recreation hunting has been a traditional and necessary form of wildlife management for years. For 75 years, Montana Sportsmen have invested their money in management programs for the benefit of wildlife, people and recreation. The Beaver Creek South subdivision is adjacent to the Gallatin Game Range which was acquired for wildlife winter range and hunting in 1951 with sportsmen's money generated by hunting license fees and excise taxes on sporting arms and ammunition.*
>
> *Since 1951 more extensive development has occurred in the area and the newcomers are already complaining about the hunting on the game range and adjoining public land. While we share their concern we must remind them that hunting has been an established use of wildlife on public lands since Montana became a state. We suggest it be mandatory that subdivision developers inform prospective buyers of the fact that hunting on public lands is an established right!*
>
> *Environmental impact statements often convey the feeling that wildlife is not disturbed by development and merely move to another part of the forest and live happily ever after. Such a feeling has no basis in fact and demonstrates a lack of appreciation for wildlife ecology. Most Montana wildlife, especially the big game species, require habitat with wilderness type characteristics. Development in one form or another and the year long people activities associated with development can effectively stop wildlife production in the impacted area. The area of impact is always a much larger area than that occupied by the development alone. Eventually, development will stop the production of the wildlife dependent upon the area and their contribution to the wildlife population will be lost forever.*
>
> *The development of land in wildlife winter range areas, such as Beaver Creek South subdivision, may also result in considerable economic loss to Montana. A recent publication indicates that wildlife in the area of the proposed subdivision could yield between $50 to $100 million in benefits over the next 25 years[1].*

---

[1] *1974 The Gallatin Area, Bulletin 344, Gallaton Canyon Study Team, National Science Foundation, Cooperative Extensive Service, Montana State University, Bozeman, Montana*

> *To realize the benefits we will need to protect the wildlife habitat, especially the winter range in the Gallatin. Also, a basic problem must be recognized--wildlife habitat cannot simultaneously be used for both wildlife under natural conditions and for development of subdivisions in or near the wildlife habitat.*
>
> *If Big Sky of Montana, Inc. feels that this subdivision is necessary to their operation, we suggest it be moved into the West Fork area closer to Big Sky where wildlife is already relegated to a minor land use.*
>
> *Montana citizens and sportsmen are concerned about land use control in relation to wildlife range. Unfortunately, concern has not been enough and the legislature "dropped the ball" when it came to seriously considering wildlife in laws dealing with planning and approving subdivisions. However, we hope the State of Montana will show concern, pursuant to the Montana Environmental Policy Act, for wildlife, for recreation and for our investment in wildlife that was made for the benefit of all people.*
>
> *Our Association is not in favor of approving this subdivision because of the adverse impact on wildlife and on public recreation associated with wildlife.*

It is true that the legislature did not pass legislation which would authorize consideration of wildlife habitat in the planning and approving of subdivisions. To not approve the subdivision based on adverse impacts on wildlife and public recreation based on wildlife would certainly precipitate litigation in the courts. This would not be in the long-range interest of wildlife protection. A probable adverse decision would have profound effects on the decision-making process of future legislatures.

The U. S. Forest Service has offered the following comments:

> *This is in response to your Draft Environmental Statement to Beaver Creek South, a proposed subdivision in Gallatin County, Montana.*
>
> *Page 3, 4th Paragraph - Brelsford and Associates have made the most favorable interpretations of J. A. Olsen, et. al. "General Soils Maps and Soils Interpretation" in this and following paragraphs. This paragraph does not say but I infer that the Neighborhood Commercial and Single Family Residences will also be confined to the Bigel-Hobacker Association soils.*

Page 11 and 12 - I echo the State Department of Fish and Game concern and would add that the development will further restrict game movement, particularly elk.

Page 23, 6th Paragraph - Forest Service contact with Montana Power Company does not support the quote of "no problem" in supplying the power needs of Beaver Creek South. John Cromer - Vice President for Electrical Operations of Montana Power at a 12/18/73 meeting with Forest Supervisor Hawkes told us that additional power service for the upper Gallatin Canyon, particularly Big Sky of Montana, would be needed by the fall of 1975. We have since received application for a 161 KV line from Clyde Park to Dillon to meet this and other needs. The developers of Beaver Creek South should be aware that this proposed powerline has not and may not be approved. Development of Beaver Creek should not be carried beyond the present power capacity in the Gallatin Canyon. If in fact all present power capacity is allocated, they should not proceed with their development until additional power is assured.

Page 12, 7th Paragraph - The Gallatin Forest Fire Protection District does not include the land on this proposed subdivision and thus the U. S. Forest Service would not be responsible for wildland fire suppression on this property. Adjacent forested land is, however, within the fire protection district. The proposed subdivision would therefore have to depend on the volunteer fire district for both structural and wildland fire protection.

Page 13, 7th Paragraph - The treatment of the effect on traffic is very incomplete. No date is placed on the ADT's given. I would assume these figures are current. In 1971 the State of Montana Highway Department estimated the present highway will carry 4,500 ADT. At that time they said that in 1969 an average increase of 43 cars per day each year without Big Sky or an ADT in 1980 of 3,181 cars. Big Sky traffic by 1980 was estimated at 600 additional cars per day or 3,781 ADT. Today we have Beaver Creek South with an estimated 900 ADT for a total of 4,681 ADT. An additional figure should be added to this total for subdivisions proposed or approved since 1971 such as proposed Karst #1 and the approved Ken McBride subdivision in the West Fork.

The State of Montana Highway Department should reevaluate their projections for this proposal and total use of this Highway taking into consideration peak periods of use. They appear to have used yearly average figures rather than peak figures and have not adequately considered the effect of other developments when they estimate a 4% increase per year to 1993; nor are they consistent with past projections.

> *Use of Highway 191 in the Gallatin Canyon may be approaching capacity during peak periods of the day now. Motor vehicle accident figures and deaths have increased many fold in the last five years. Beaver Creek South will intensify the problems. The report should accurately quantify these additional traffic problems and weigh their consequences including the consequences of a 4 lane highway.*
>
> *The Beaver Creek development is not adjacent to National Forest land. Effects on National Forest land will be secondary in such forms as increased pressure for the 161 KV powerline, highway 191 improvement, use of National Forest lands for various recreation purposes, etc.*
>
> *A map of this development would have helped greatly in the evaluation process.*

The neighborhood commercial area and some of the single-family residences will be located on the Bigel-Hobacker Association soils. Part of the single-family residences would be constructed on Leavitt-Loeberg and Leavitt-Hanson Associations.

The development of Beaver Creek South would add to the total power needs of the area. This subdivision alone would not create a need for additional power lines but would be a contributing factor should one be deemed necessary.

The Department of Highways reaffirms their comments on the effects the proposed subdivision would have on U. S. Highway 191. Paul R. DeVine, Chief of the Planning and Research Bureau, states that highways are designed to handle the thirtieth peak traffic flow and not the greatest peak traffic period.

The Department of Natural Resources and Conservation offered the following comments:

> *The Department of Natural Resources and Conservation (DNR&C) wishes to comment on the Department of Health and Environmental Sciences' Draft Environmental Impact Statement (EIS) for the proposed Beaver Creek South subdivision in Gallatin County. General and specific comments follow:*
>
> *GENERAL COMMENTS*
>
> *Although it requires more time and effort, some consideration of the comulative impact of the increasing subdivision activity in the Gallatin Canyon is needed. Environmental assessments*

should not be restricted to the impact of a particular subdivision but rather should reflect consideration of those in existence and to the potential for new subdivisions. Limited reviews provide only incremental assessments which may not describe the total situation. Incremental impacts can add up to significant impacts and, therefore, some effort must be given to assessing their cumulative effect. For example, one subdivision might, by itself, remove only an insignificant amount of wildlife habitat; however, several subdivisions in concert may remove a substantial amount of such habitat resulting in a major negative impact on wildlife.

A helpful addition to readers of this statement would be a general locator map together with a map showing the arrangement of development within the subdivision.

SPECIFIC COMMENTS

Page 3, Covenants. The developers assert that development planning and architectural control are to be maintained by a landowners' association and that land-use covenants will reduce the disruptive influence of the proposed subdivision upon the natural environment.

A full discussion of the effectiveness of these control methods should be presented in the Final EIS. Such discussion should center on such questions as:

(a) How is the landowners' association created and can it be dissolved?
(b) What enforcement power does the association have?
(c) Can the association modify or absolve the development plan or the restrictive covenants and, if so, by what means or procedures can this happen? and
(d) Generally, are these restrictive covenants adequate to protect the natural environment? If not, where are they weak?

Page 6, Water Supply. In reference to the water supply, there is no mention of water rights. On page 7 it is stated that, " . . . it is anticipated (emphasis added) that no single well will serve more than eight dwellings or more than 24 persons . . ." This statement does not place a limitation on the withdrawal from each well. In accordance with the Water Use Act, if the yield is 100 gallons per minute or more per well then an application for a beneficial water use permit must be made to the Department of Natural Resources and Conservation, and a permit to appropriate water issued before construction may begin. It should be further noted that the Water Use Act also requires that regardless of the yield from each well, the driller must file a well log report. Within 60 days of completion the appropriator also must file a notice of completion of water development with the Department.

Page 12, Visual Impact. We agree that the visual impact of the proposed development is, to a degree, open to speculation and a matter of personal values. However, the Final EIS should acknowledge the fact that the Gallatin Canyon is widely renowned for its scenic, natural beauty, unmarred by extensive development. The placement of subdivisions within the scenic canyon setting, therefore, has a far more serious visual impact relative to similar developments within or near urbanized areas.

Similar to other impacts, one subdivision adds only an incremental amount of degradation of natural beauty which, taken alone, may be acceptable. Nevertheless, increments often accumulate with the addition of each new development until unacceptable levels or thresholds are reached or surpassed.

The Final EIS should, therefore, consider not only the direct impacts of this one proposal, but also the cumulative impacts of existing and potential subdivisions in a relatively pristine canyon setting.

Page 12, Electric Power. The proposed 200 homes, if of average size, with normal electrical use and heat, could contribute approximately 2.0 to 2.5 megawatts to peak energy demands. Additional energy demand will result from the commercial development and the sewage treatment plant.

Montana Power Company's long-range plans indicate that in the near future, the Company wishes to apply to the DNR&C to construct an additional powerline of 161 kilovolts (KV) near the area of this proposed development. If an application is received, the Department has 600 days thereafter to study the proposal and make its recommendation to the Board of Natural Resources, who, has final authority to deny or approve the application. To date, no application has been received by the Department for this project.

A statement is made in the Draft EIS that there would be "no problem" in supplying the power needs of development, however, it is not clear if there is presently no problem or if there would be "no problem" assuming the proposed 161 KV transmission line were approved and constructed.

Page 13, Police Protection. The final statement should clarify the comment that "the Association may decide to hire its own security agent for added protection, in a similar manner to Big Sky of Montana". A recent news article pointed out that the salary of a deputy sheriff to be stationed at Big Sky will be paid by the public (Gallatin and Madison Counties). From what funding will the salary of Beaver Creek South's security agent be drawn?

Page 13., Property Valuation. Possible data assembled by the Montana State University Gallatin Canyon Study could help ascertain whether property valuations are sufficient to cover the additional costs of government services. A recent reference obtained by the State Library may also help in this regard:

> *Oregon Extension Services*
> *Local Tax Impact of Recreation and Subdivisions: A Case Study*
> *Special Report 365, 1972.*

Page 13, Vehicle Impact. The Department of Highways' comments give the full development level for the subdivision as 174 dwelling units; elsewhere in the Draft the developer affirms that 200 dwelling units will be possible if the subdivision is fully developed. Therefore, the Department of Highways traffic figures may be somewhat understated if based upon 174 units.

It would be useful information if the threshold level were given for that average daily traffic (ADT) which would warrant road widening or the construction of a four-lane highway in the canyon. The Department of Highways projects future traffic in the canyon for 1993 as 3,600 vehicles per day. This figure assumes a 4 percent annual growth in the present traffic volume of 1,240 vehicles per day for an increase to 2,717 vehicles by 1993. The 900 additional trips generated from Beaver Creek South are added to 2,717 giving a total of 3,617. If the 900 figure is added at the beginning of the 4th year rather than at the end of the 20th year, a traffic volume for 1993 is 4,470 rather than 3,600. Using either a figure of 3,600 or 4,470, the carrying capacity estimated by the Department of Highways for the present canyon highway of 4,500 vehicles per day is being approached.[1]

The estimates for 1980 summer ADT prior to the advent of the Beaver Creek South subdivision is 3,781.[2] *If the additional traffic volume from Beaver Creek South of 900 is added to this assumed traffic flow it appears that within 10 years, summer traffic could exceed the present capacity of the highway!*

---

[1] *The Murray-McCormick Environmental Group, Gallatin Canyon Final Report, (1972). p. 180*

[2] *Ibid. p. 132.*

Although we are unskilled in estimating future traffic flows, it would seem that some discussion should be given to the adequacy of using a 4 percent annual increase in traffic when it seems possible to estimate the load more exactly from subdivision activity underway or planned such as was done for Beaver Creek South. For example, the Draft EIS for the Cascade Subdivision at Big Sky, September 1973, states that this one subdivision will accommodate 363 single family homes, multiple homesites for 420 families; and that between 950 and 1,000 condominium units would eventually be included.[3] *If Beaver Creek South will increase ADT by 900, it should be possible to estimate the increased ADT from this subdivision as well as provide a seemingly better estimate of future traffic loads.*

Page 14, Statement of Big Sky of Montana, Inc. This statement supports the proposed development on the assumption it will help provide housing for employees of Big Sky and other individuals employed by third parties at Big Sky. Yet, the draft lacks an analysis of this statement and thereby leaves the reader to accept the conclusions as presented. If this statement remains in the final, then the Water Quality Bureau should address its validity.

We have reservations whether the majority of employees at Big Sky and other associated workers could afford the lots or housing in this subdivision. And, if so, what will encourage them to purchase in Beaver Creek South rather than in Big Sky's subdivisions or condominiums? Obviously, Beaver Creek South would have to sell or rent real estate more cheaply, if Big Sky's employees are to prefer Beaver Creek South.

Page 14, Alternatives. Within this section it is noted that:

> *Although there would be adverse environmental effects on wildlife and, to many, a degradation of the aesthetic quality of the area, no legislative mandate is in effect which would give legal justification for refusing to grant subdivision plat approval on these grounds.*

This comment articulates a problem common to a number of agencies which are often obligated by law to approve actions that may have a significant environmental impact. MEPA mandates a broad consideration of all impacts associated with certain actions. Yet, in that it is necessary to operate within legislative guidelines, it is not always possible to avert certain impacts by disallowing an action.

---

[3] *Montana Department of Health and Environmental Sciences, Draft Environmental Impact Statement, Cascade Subdivision in Madison County, Sept. 20, 1973. p.1.*

> *The regular occurrence of situations of this nature would suggest that new legislative guidance and direction is appropriate. A determination of the state's capacity to serve the long-term public interest can, in part, evolve from internal deliberations. Among these should be an assessment of the efficacy of given authorities and an examination of the need to propose certain statutory changes. Efforts of this nature on a continuing basis will hopefully enable the state to maintain its resource values and present quality of life.*
>
> *We appreciate the opportunity to comment upon this Draft EIS and are hopeful these comments will be useful in preparing the Final EIS.*

The point is well taken that some consideration is needed of the cumulative impact of increasing subdivision activity in Gallatin Canyon as incremental impacts can add up to significant impacts. This is something that is necessary in all of Montana. The Gallatin Canyon Study Team from Montana State University is addressing this problem. With funds from the National Science Foundation, they are studying the impacts of development on the Gallatin Canyon area. Reports are available to the public.

There are approximately 2,800 acres in the Gallatin Canyon that have a high potential for residential development. Beaver Creek South would occupy 95 acres of this land or a little over 3 percent.

The landowners association would be comprised of the lot owners and is financed by an annual assessment. Enforcement of covenants or restrictions is the responsibility of the association. They may bring an action at law against a lot owner for violations. The restrictive covenants can be modified by an instrument signed by 70 percent of the lot owners.

As with most covenants, enforcement is most difficult. A neighbor is reluctant to take another neighbor into court. Therefore, compliance is usually voluntary. These covenants address such problems as architectural control, hunting prohibition, building size, open space and the like. These could reduce the visual impacts to this widely renowned scenic area, but they would not eliminate the impact.

If Beaver Creek South were to hire a security agent, his salary would be paid by the property owners association through annual assessments.

Whether property valuations would be sufficient to cover additional governmental services has not been determined. The Water Quality Bureau did not make this determination for two reasons:

1. This has no bearing on a decision to be made on the proposed subdivision.

2. The assessed value of property or improvements need to be estimated in order to make some calculations. Other data that would be needed would be the area of the subdivision, number of lots, number of parcels with improvements, number of in-state and out-of-state owners, number of lots occupied year-round, number enrolled in school, number of registered voters, tax rates, school district tax levy, number of children in the district, and the number of taxed lots in the school district. Some of this information is not readily available. However, it can be stated that the same benefit-cost relationship does not continue with increased development of a subdivision. A subdivision may generate more revenue than its service cost at one stage of development but may generate less revenue than its service costs (without a tax increase) at another stage of development.

The Northern Rockies Action Group has made the following statement:

> *I am in receipt of a copy of the draft environmental impact statement prepared on the Beaver Creek South subdivision in Gallatin County. For a variety of reasons, this environmental statement is both premature and incomplete. As I will detail below, the inadequacies of this statement are so substantial that I have no doubt that the best course to follow would be the preparation of a new draft environmental statement when the Department of Health is in fact ready to propose an action or discuss in detail the alternatives available to it.*
>
> *In general, it is not appropriate to include within an environmental impact statement material from individuals who stand to profit a great deal from the approval of the development. At least, the Department of Health should either verify, critique or delete the material submitted by the environmental consultant. In fact, this material represents the bulk of the environmental statement; there is absolutely no indication that the Department of Health has done its own work on this subdivision. And, if as noted in the environmental*

statement, the waste water disposal is still under review by the Water Quality Bureau, there is absolutely no point in preparing an environmental statement for public review at this time. The purpose of an environmental impact statement is to explain in detail an agency's proposed action and to balance environmental and economic costs and benefits for public review. This is not done in the statement under discussion.

In addition, where the Department does engage in its own analysis, the language used is primarily canned. For example, it is reasonable to assume without knowing anything besides the location of this development that the impacts would "undoubtedly fall within the range associated with the residential use of a mountain valley." However, this kind of statement does not come close to satisfying the requirements of the Montana Environmental Policy Act and the guidelines prepared thereunder. A rather rigorous balancing analysis of costs and benefits of residential use of a mountain valley should be undertaken. Absent this kind of analysis, the statement is not in compliance.

The remarks presented by the Department of Fish & Game are heartening, since they are the primary independent comments contained in this environmental statement. However, as noted with the comments submitted by the environmental consultant, the Department should verify, critique or delete the statements submitted even by another state agency. Agency comments are properly included, attached to the draft environmental statement, when the final is circulated. However, where their input is to be used in the preparation of a draft, it should be clearly noted, and the Department should conduct an evaluation of the submitted material. In other words, the purpose of an environmental impact statement goes far beyond merely full disclosure. The Environmental Policy Act was passed to insure that the agency not only disclosed information and information gaps, but also evaluated the available information and presented the public with a balancing of the costs and benefits of the proposed agency action.

The comments above on the material submitted by the environmental consultant apply to the community impact report which was incorporated in this draft impact statement without independent verification. If it has not been ascertained at this time whether the property valuation of the proposed development would be sufficient to pay for the necessary school expansion, then there is no point in preparing an environmental statement at this time. Again, the function of an agency in preparing an environmental impact statement is more than revealing information gaps which could be filled by the agency; absent the completion of this analysis, the statement does not fulfill the requirements.

In the section on alternatives to the proposed development, more evaluation should be supplied. It is not enough merely to point out that there will be adverse environmental effects on wildlife and degradation of the (esthetic) quality of the area. What is the balance of these costs compared with the benefits of the development? Do they outweigh the benefits of the development? If they do, then the Department of Health should not oppose the proposed subdivision since it is not sound public policy. These questions must be addressed in an impact statement, even if, supposing the Department of Health position is correct, there is no explicit legislative mandate to make environmental decisions on other grounds. Regardless of this departmental contention, all agencies are bound to make decisions that are in fact good public policy in all cases.

In the section on long-term impacts of development, there is no way to verify the statement that the proposed development would reduce the pressure for mobile home parks and residential subdivisions. One might have assumed that the pressure for other residential subdivisions could have been curbed by the Big Sky development; obviously, this is not the case. Without supporting evidence, this type of statement should be deleted.

To conclude, this draft environmental statement by the Department of Health is premature and incomplete. I cannot understand why the Department felt it necessary to prepare this impact statement at this stage in the evaluation of the proposed development. The results should be in before the public is troubled with the review of a statement. Hopefully, in the future, the Department of Health will pursue more evaluation before releasing statements to the public. When this is done, the Department might want to consider, in addition to the above objections, the following.

A Montana Power Company official was quoted as stating that it would be no problem in supplying the needs of the anticipated number of residents of the Beaver Creek South subdivision. Does this "no problem" mean that the existing transmission lines are adequate to supply the needs of this development, or does it mean that the power company and thereby the Department of Health are banking on the construction of the proposed 161-kv line from Ennis? A Department of Highways official is quoted saying that the projected volume from the Beaver Creek South and the Big Sky developments would not warrant construction of a 4-lane facility from the area. What volumes of traffic would warrant construction of a 4-lane facility? How many more subdivision units could the Department of Health approve in the Gallatin Canyon without warranting the construction of such a 4-lane road? Further, what are the impacts of the

> *described 7 1/2 acre neighborhood commercial area at the subdivision?*
>
> *How does the Department of Fish & Game statement that tertiary sewage treatment should be required fit with the Department of Health contention that secondary sewage treatment would probably be adequate.*
>
> *Again, the Department of Health should prepare a new draft environmental impact statement that at least gives the public an opportunity to review in some detail both the costs and the benefits of the proposed departmental action. Unless this is done, the letter and the spirit of the Montana Environmental Policy Act will be circumvented.*
>
> *Thank you for the opportunity to comment.*

Dorothy Bradley has made the following comments:

> *I am writing to request a rewriting of the draft environmental impact statement for the Beaver Creek South development in Gallatin Canyon.*
>
> *I make this request because it is inappropriate for the Department to use the environmental assessment of an independent consultant without editing or scrutinizing the work. Furthermore, the department should take special caution in accepting work from a firm which has direct financial interest in the development under study. Federal case law under the National Environmental Policy Act establishes that this is inappropriate.*
>
> *I also found the EIS to be incomplete.*
>
> 1. *In spite of a fairly complete discussion on the geology of the area I think more adequate information is needed on the long term water needs. Although producing wells have been drilled, at what rate will the aquifer recharge itself?*
>
> 2. *Information was definitely insufficient on the matter of sewage disposal. P. 11 of the EIS states that "the proposed method of wastewater disposal is still under review by the Water Quality Bureau." How is the public supposed to evaluate something on which the agency has made no determination? The EIS would have it appearas a relatively simple matter, saying on P. 14, "when it is determined what pond area and dosing rates of wastewater from the sewage treatment would insure the quality of ground and surface waters, then the proposed development would appear to meet the concept criteria required . . ." This conflicts with*

another agency which states on P. 12 that "unless at least tertiary sewage treatment is planned, it is my feeling that in time water quality degradation will occur in the watercourse in the area even though the seepage ponds are located quite far away from either stream."

Part of the purpose of the EIS is to present to the public information and agency evaluations regarding decisions that are to be made. Information on waste treatment should not be skimped. Agency conflicts should be cleared up or, at least analyzed.

3. *The comments on P. 12 and 13 are shallow.*

   For example, a Montana Power Company representative is quoted saying that supplying energy for Beaver Creek South residents will be "no problem." No problem for whom? Will that source of energy depend on the proposed 161 kv line from Ennis to Big Sky? If so, it is a problem for those of us who are supporting inclusion of Jack Creek in the Spanish Peaks wilderness proposal. No problem for MPC? I heard this past winter from a MPC lawyer in his presentation to the Environmental Quality Council, that an energy emergency would occur in the summer of '75 if plans for power plants in eastern Montana did not take place rapidly. He was requesting a waiver of the legally required time periods for public review of energy facilities.

   If the problem of energy supply is to (be) mentioned at all it should be discussed seriously and in depth.

4. *P. 13 includes comments on Ophir School. I suppose it is possible that Ophir School's growth will coincide with Beaver Creek's. But accommodating 300 new students is not to be treated lightly--especially considering the school had about 10 students a year ago. 300 students cannot help but cause increased growth pains. This subject demands greater attention, as it is part of a much larger question--will the public cost of the development exceed public benefit?*

5. *I am concerned that part of the justification for Beaver Creek South is the housing needs of its neighbor, Big Sky. Will such reasoning not lead to a proposal for a new housing development to take care of the employees of Beaver Creek?*

Again, because of the inadequacies of the EIS, and more importantly, because it contains a suspect and unexamined source of information, it does not comply with MEPA. It should be rewritten and reissued as a draft EIS when the Department has more information and has done more evaluation.

An environmental impact statement can be an extremely useful guide and tool in the decision-making process. To paraphrase Richard D. Klinger, staff counsel for the Environmental Quality Council

> *One of the main purposes of the Environmental Policy Act was to assure a reasoned and balanced judgment about the effects of a project before the project was begun. The EIS process, if indulged as a pre-decision methodology and not as a means of project justification, can yield very helpful and useful results.*

At the time the draft environmental impact statement was circulated, no decision had been reached by the Water Quality Bureau concerning the proposed Beaver Creek South subdivision. If a decision had been reached, an environmental impact statement would have just been a means of justification.

As stated in the draft environmental impact statement

> *Can-Tex Industries' diffused air type sewage treatment units are proposed. BOD and suspended solids should be reduced 80 to 90 percent and fecal coliforms reduced to 200 to 100 milliliters, thus affording the equivalent of secondary treatment. Plans and specifications for these sewage treatment units are available for inspection in the Helena office of the Water Quality Bureau. Wastewater disposal would be through the use of infiltration ponds.*

For wastewater disposal, two 20,000 square foot percolation ponds are proposed. The percolation area will be topsoiled and planted to reed canary grass. In the draft environmental impact statement, evidence was offered that demonstrated the success of this system in several parts of the country. Therefore, the Water Quality Bureau has given serious consideration to the proposed sewage disposal system. A tertiary treatment plant was considered but was deemed impractical for this small of a residential development.

Since percolation ponds have not been used to a great extent in this part of the country, any such system would require monitoring wells to ascertain any effect on groundwater. Two to the east of the ponds and one north of the ponds would be necessary.

Following is a summary of the proposed wastewater collection and treatment system:

	INITIAL		ULTIMATE	
Population	150		700	
Plant Flows				
(a) Average daily flow	15,000 gpd		70,000 gpd	
(b) Peak flow	40 gpm		125 gpm	
Sewage Quality	mg/l	lbs/day	mg/l	lbs/day
(a) Raw sewage BOD	200	26	200	120
(b) Raw sewage SS	250	31	250	145
Design Efficiency - Treatment Plant				
(a) Effluent BOD to percolation ponds	15-25	3	15-25	14
(b) Effluent SS to percolation ponds	20-30	4	20-30	17
Extended Aeration Plant Components				
(a) Design flow	15,000 gpd		70,000 gpd	
(b) Aeration tank	15,012 gal.		70,000 gal.	
(c) Aeration tank detention time	24 hrs.		24 hrs.	
(d) Air capacity	52.2 CFM		270 CFM	
(e) Blower	3 HP		one at 3 HP one at 5 HP	
(f) Clarifier volume	2,872 gal.		11,700 gal.	
(g) Clarifier detention time	4.6 hrs.		4 hrs.	
(h) Clarifier surface loading rate	237 gal/ft^2		256 gal/ft^2	
(i) Clarifier weir overflow rate	1,579 gal/L.F.		2,080 gal/L.F.	
(j) Aerobic digester	3,393 gal.		16,000 gal.	
(k) Aerobic digester-cu.ft./capita	3.05		3.05	
(l) Chlorine tank	392 gal.		2,000 gal.	
(m) Chlorine tank detention time	37.7 min.		40 min.	
(n) Gas chlorinator capacity	100 lb/day Max.		100 lb/day Max.	
Percolation Ponds				
(a) Number of ponds	2		2	
(b) Bottom area, each pond	20,000 sq. ft		20,000 sq. ft.	
(c) Dosing rate (average)	0.375 gal./ft^2/day		1.75 gal./ft^2/day	

Alternatives Available to this Department

1. Approve the subdivision plat as submitted. From the data submitted, the department gave serious consideration to this alternative. Adequate evidence that a water supply is available has been given. Approved solid waste facilities are available. The sewage treatment system is acceptable. The wastewater disposal system is an experimental method for the climatic and geographic setting of Gallatin Canyon. Therefore, a blanket approval would be premature.

2. Approve the initial phase of Beaver Creek South and base further action on operation of the wastewater disposal system. Serious consideration was given to this alternative and exercise of this alternative can be justified in light of concept criteria required by MAC 16-2.14(10)-S14340, Section 69-5001 through 69-5005, R.C.M. 1947, and Section 69-4801 through 69-4827, R.C.M. 1947. The system would have to be monitored. If the evidence indicated there was forthcoming degradation of groundwater, the percolation ponds would be expanded. Five acres are available for this purpose. Dosing rates (average) could be reduced to approximately 0.075 gallon per square foot per day.

3. Refuse to approve the subdivision plat under any conditions. From the evidence submitted, the department could not justify the exercise of this alternative.

This statement was prepared by Alfred P. Keppner, B.S.F., M.S., Soils Scientist, with information furnished by Brelsford and Associates, Morrison-Maierle, Inc., Montana Department of Highways, Montana Department of Fish and Game and others designated therein.

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

October 9, 1974

OCT 10 1974

Honorable Thomas Judge, Governor, State of Montana, Helena
Don Brelsford, Brelsford & Associates, P. O. Box 1252, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Board, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Morrison-Maierle, Inc., 910 Helena Avenue, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
Department of Highways, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North Bozeman Avenue, Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South 13 Avenue, Bozeman
Mary Lee Reese, 29 South Alta, Helena
Dr. Richard C. Ritter, Box 1170, Bozeman
James Posewitz, Department of Fish and Game, Helena
Gallatin National Forest, Federal Building, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Environmental Quality Council, Helena
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, University of Montana, Missoula
Montana State Library, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Ed Mohler, Gallatin County Tribune, 201 Mendenhall, Bozeman
Bozeman Public Library, Bozeman
Environmental Studies Department, Larry Uman, University of Montana, Missoula
Gallatin Canyon Study Team, Montana State University, Bozeman
Beaver Creek South, Inc., 24 South Willson, Bozeman
Consumer Advocate, Governor's Office, Helena
Morrison-Maierle, Inc., Box 1113, Bozeman

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Dorothy Bradley, Box 931, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman
Great Falls Tribune, Great Falls
Honorable Gordon Bennett, 616 Ewing, Helena
Joe Sabol, 27 North Tracy, Bozeman
County Assessor, Courthouse, Bozeman
County Sheriff, Courthouse, Bozeman
County School Superintendent, Courthouse, Bozeman
State Superintendent of Public Instruction, Helena
Soil Conservation Service, Federal Building, Bozeman
Layton Thompson, 918 South Tracy, Bozeman
Carl Anderson, Montana Power Company, Butte
Environmental Information Center, Box 12, Helena
Paul T. Richards, 902 North Park, Helena
Dan Smith, Citizens Alert for Guided Growth, 812 South Eighth, Bozeman
C. W. Gonder, 823 East Call St., Livingston
Mrs. Winifred Lucky, 420 South Sixth, Livingston
Mrs. Vel Jansen, 430 South Sixth, Livingston

This revised final environmental impact statement for Beaver Creek South, a proposed subdivision in Gallatin County, was prepared at the request of the Montana Environmental Quality Council. It is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of this statement. All correspondence should be directed to the undersigned.

Sincerely yours,

D. G. Willem

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Ben Wake
Terry Carmody

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

E.S. 74/85

A Revised Final Environmental Impact Statement for BEAVER CREEK SOUTH, a proposed subdivision in Gallatin County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 69-4827; and at the request of the Montana Environmental Quality Council, a revised final environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning the proposed Beaver Creek South subdivision in Gallatin Canyon, for which a submittal has been received requesting subdivision plat approval.

Response to the draft environmental impact statement was received from the state's Environmental Quality Council, Department of Highways, Gallatin Sportsmen's Association, U. S. Forest Service, Department of Natural Resources and Conservation, the Northern Rockies Action Group, Inc., and Dorothy Bradley. An attempt will be made to satisfactorily answer all questions raised in the correspondence.

Location

This project is located approximately seven miles south of the Big Sky of Montana Meadow Village in the canyon of the West Gallatin River. It is situated in the SE 1/4 of Section 17, Township 7 South, Range 4 East, MPM. Beaver Creek crosses a portion of the property for about one-fourth mile along the north side. The right-of-way of U. S. Highway 191 forms the eastern boundary.

Description of the proposed project

The owner, Beaver Creek South, Inc., a Montana corporation, intends to divide approximately 95 acres into 75 lots for single-family and multi-family residences and a maximum of 7 1/2 acres along U. S. Highway 191 for a neighborhood commercial area. Following is a table of land use and areas:

Phase I	
Lots	60.899 acres
Roads	12.468 acres
Open space and parks	21.281 acres
	88.456 acres

Phase II	
Lots	4.560 acres
Roads	0.701 acres
Park	0.931 acres
	6.192 acres

DENSITY AND USE ASSIGNMENT

Single-Family	Lots	Acreage	Dwelling Units
Phase I			
Block 2	15	8.7	15
Block 3	17	11.6	17
Phase II			
Block 9	7	4.6	7
	39	24.9	39
Multi-Family-Condominium Apartment Dwellings			
Phase I			
Block 1	6	5.5	44
Block 4	7	3.8	23
Block 6	4	2.1	8
Block 7	7	6.0	48
Block 8	4	12.0	12
	28	29.4	135
Neighborhood Commercial			
Phase I			
Block 5	5	7.5	0
TOTAL	72	61.8	174

The developer proposes an initial housing start on Phase I that would serve approximately 150 persons. Water supply systems and an initial phase of the sewage collection and treatment system would be installed to serve this initial development, which would be concentrated in Block 7. Expansion of these facilities to enable development of the remainder of the subdivision would be contingent upon successful operation of the sewage treatment system.

It has been estimated by the Soil Conservation Service (U. S. Department of Agriculture) in 1972 that the annual discharge of Beaver Creek is about 9,000 acre feet. This stream supports a salmonoid fishery with individuals ranging up to 12 to 14 inches in size.

Stream-side willows and other brush provide stream bank protection and afford browse and cover for undulates and other wildlife.

The land use plan for Beaver Creek South calls for a natural open space parkway dedication of 300 feet in width along the creek. No buildings will be permitted within this parkway nor will any of it be plotted into lots. This parkway, as well as the other natural open space and recreation areas, will be owned in common and maintained by the property owners' association, Beaver Creek South Association. The overall open space and recreation areas for Beaver Creek South will make up over 22 percent of the development.

Physical features of the land include the Beaver Creek alluvial fan, which covers the northern one-quarter of the property. The vegetative cover is dominantly by wheatgrass, fescue, and sagebrush, except along Beaver Creek. The eastern third of the property borders U. S. Highway 191 and has a gentle slope to the south. It is covered with similar vegetation as the alluvial fan. The remaining part of the property occupying the southwest corner is dominated by a hill that looms about 350 feet above lower, gently sloping land to the north and east. Lodgepole pine and douglas fir are the primary tree species, although several aspen groves of up to three acres in size are in evidence in addition to several small meadows. The hill area is generally not included within the external boundaries of the Beaver Creek South subdivision.

Because Section 69-5005, R.C.M. 1947, states that *adequate evidence that a water supply that is sufficient in terms* *of quality, quantity and dependability will be available to ensure an adequate supply of water for the type of subdivision proposed,* a report on potential water sources was prepared by Donald Alford, Geophysical Consultant, and is submitted as part of this adequate evidence.

The report concerned itself primarily with a discussion of the potential for development of sufficient water supplies from the surficial geological materials to supply the domestic needs of the development and was not considered to be a complete hydrologic evaluation of the development. The discussion was based primarily on an examination of the near surface characteristics of the geologic materials in the area and their relationships to the surface drainage pattern of this portion of the Gallatin Canyon.

Geology

This discussion of the geology of Beaver Creek South was taken largely from Hall (1961), modified to some extent by observations of Donald Alford.

The area occupied by Beaver Creek South is presumably completely underlain by the Thermopolis Shale, which is Cretaceous in age. Hall (1961) states that:

> *Overlying the upper sandstone member of the Kootenai (lower Cretaceous) with apparent conformity are some 150 feet of medium to dark gray, very fissile carbonaceous shales and unevenly bedded siltstones, possibly of non-marine origin. This shale has previously been included by others as the lowest member of the "Colorado shale", which includes rocks of both Early and Late Cretaceous age. This shale may be terrestrial or brackish-water equivalent of the marine Thermopolis shale of Wyoming and is tentatively so considered on the basis of stratigraphic position and lithologic similarity."*

The Kootenai formation, which underlies the Thermopolis shale in the area, is some 400 feet thick (Hall), and consists of interbedded non-marine conglomerates, claystones, fresh-water limestones and sandstones.

The dip of these formations in the study area is gently (approximately 5 degrees) northward to northeastward.

Locally overlying the Thermopolish shale within the study area are a variety of Quaternary surficial deposits, including those produced by gravity movements and the alluvium deposited by Beaver Creek and the Gallatin River. The Gallatin River alluvium and the Beaver Creek alluvium have been differentiated on the basis of a series of test pits excavated to a depth of 8 to 12 feet at 12 sites in the study area. The Gallatin River alluvium, which composes the surficial deposits in the southeastern corner of the development, consists of interbedded, well-sorted gravel and sand with thin, intermittent clay lenses. No evidence of clay was found within the gravel and sand layers. The Beaver Creek alluvium on the other hand was found to consist of very poorly sorted detritus, ranging in size from boulders greater than 25 cm in diameter to a fairly spatially uniform clay matrix. It is felt that, while the permeability of the Gallatin River alluvium will be uniformly high throughout the study area, that of the Beaver Creek alluvium will have a high local variability, depending primarily on the percentage content of the clay fraction. There was some indication from the test pits that the clay content of the Beaver Creek alluvium decreased from east to west, but no tests were conducted to quantify this impression.

No attempts were made to determine the lithologic character of the landslide deposits since it is not felt that they would contribute significantly to the water supplies of the area, although their hydrologic characteristics may be of some significance in determining their present stability.

Hydrology

The primary water resources of the area are represented by surface flows in Beaver Creek and the Gallatin River, together with an unknown quantity of groundwater, which is presumably contained in the Kootenai formation. It has been estimated by the Soil Conservation Service, Department of Agriculture (1972) that some 350,000 acre feet of water represent the total mean annual flow of the Gallatin River at the mouth of the West Fork, a few miles downstream from the confluence of Beaver Creek with the Gallatin River. This same source gives 9,000 acre feet as the annual discharge of Beaver Creek. It is presumed that the near-surface (i.e., those contained in the Quaternary alluvium) groundwater resources of the study area are intimately connected to the surface stream flow past the site. Because of the apparent high permeability of the Gallatin River alluvium and the large volume of annual surface flow, it is suggested that this unit represents the most probable source of developable water supplies of the quantity required by Beaver Creek South. The only qualification given to this statement is that the total depth of the gravels is not known at this time, and they must extend to below the elevation of the Gallatin River to be productive. A minimum thickness of 30 inches is felt to be required. Locally, the Beaver Creek alluvium should yield water but the quantities will be much smaller due to lower transmissibility of the unit in general and the greater local variability of this characteristic.

The second potential source of water for the development is an upper sand member of the Kootenai formation, which, while it is nowhere exposed in the study area, is presumably present at depths of 100 to 150 feet. This member of the Kootenai formation is a productive aquifer almost everywhere it is encountered in the state of Montana and very large sections of the state are dependent upon it for water supplies. Water derived from the Kootenai formation may have a high dissolved mineral content which may include iron, calcium, etc. The entire 400-foot thickness of the Kootenai formation is a potential water source, depending upon local condition of permeability.

References Cited

Hall, W. B., (1961) - Geology of Part of the Upper Gallatin Valley of Southwestern Montana, Unpub. Ph.D. dissertation, Department of Geology, University of Wyoming, 239 pp. with maps and illustrations.

Farnes, P.E., and Shafer, B. A. (1972) - Hydrology of Gallatin River Drainage, Soil Conservation Service, U. S. Department of Agriculture, Box 970, Bozeman, Montana, 28 pp. with maps.

Two wells have been drilled on the property. One is at a depth of 52 feet and has been rated at 98 gallons per minute. The other is 43 feet and rated at 60 gallons per minute. The well logs read as follows:

Depth (feet)		
From	To	Formation
0	9	Clay
9	20	Very dirty gravels with large rocks
20	28	Dirty gravels - rocks
28	52	Red Shale

Depth (feet)		
From	To	Formation
0	2	Topsoil
2	26	Loose clay-bound sand-gravel to rocks
26	40	Sands
40	43	Porous Rock

The master plan for Beaver Creek South calls for the developer to supply water to each living unit. It is anticipated that no single well will serve more than eight living units nor more than 24 persons, thereby avoiding the creation of a public water system. The property owners' association would be responsible for maintenance of the systems. However, it would be impossible to state that such common water systems would never become public as the developer has no control over the number of people that may occupy a living unit. It would be in the best interest of future residents to have one community water system. Since the many common water systems can adequately supply domestic water, no statues are applicable that would force the developer into such a venture.

The Department of Natural Resources made the following comments in regards to the water supply:

> *In reference to the water supply, there is no mention of water rights. On page 7 it is stated that, " . . . it is anticipated* (emphasis added) *that no single well will serve more than eight dwellings or more than 24 persons . . ." This statement does not place a limitation on the withdrawal from each well. In accordance with the Water Use Act, if the yield is 100 gallons per minute or more per well than an application for a beneficial water use permit must be made to the Department of Natural Resources and Conservation, and a permit to appropriate water issued before construction may begin. It should be further noted that the Water Use Act also requires that regardless of the yield from each well, the driller must file a well log report. Within 60 days of completion the appropriator must file a notice of completion of water development with the Department.*

As noted above, the two test wells had yields of 98 and 60 gallons per minute after four hours of pumping. There is no intention of pumping 100 or more gallons per minute from wells at Beaver Creek South. The driller has filed a well log report for the two test wells with the Department of Natural Resources and Conservation.

Comments on the draft environmental impact statement concerning water supply that were submitted by Dorothy Bradley indicated that the . . .*fairly complete discussion on the geology of the area* . . .and test wells were not adequate information as to the long-term water need of the proposed subdivision. This becomes a question of interpretation of the language of Section 69-5005, R.C.M. 1947, which states that . . . *adequate evidence that a water supply that is sufficient in terms of quality, quantity and dependability will be available to ensure an adequate supply of water for the type of subdivision proposed.* It has been deemed by this department that a favorable hydrogeologic report and two drilled wells that produce 60 and 98 gallons per minute is adequate evidence.

Regarding the potability of groundwater in the West Gallatin River area, the following data has been compiled by the Gallatin Canyon Study Team.

NUTRIENT CONTENT OF WELLS AND SPRINGS (mg/l)*

Well	# Samples	Total PO_4-B	Ortho PO_4-P	NO_3-N	NH_3-N
B.S.	4	0.057	0.000	0.053	0.002
Ch.	3	0.008	0.000	0.064	0.002
C.W.	2	0.019	0.003	01021	0.007
M.W.	3	0.018	0.000	0.225	0.049
NTS^4	1	0.018	0.000	0.410	0.032
Po	4	0.015	0.000	0.025	0.030
OP	3	0.017	0.000	0.121	0.016
BT4	3	0.042	0.016	0.000	0.283
NTS6	1	0.004	0.000	0.177	0.000
NTS7	1	0.027	0.000	0.340	0.000
Ro	2	0.018	0.000	0.012	0.002
Sm	1	0.008	0.000	0.013	0.005
Cr	1	0.000	0.000	0.080	0.000
NTS-5	1	0.043	0.025	0.090	0.000
NTS-8	1	0.017	0.003	0.014	0.000

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*Ground and Surface Water Quality of the West Gallatin Canyon Area, Progress Report, 1970).

Well	# Samples	Total PO_4-B	Ortho PO_4-P	NO_3-N	NH_3-N
Average		0.035	0.003	0.104	0.019
Springs					
C.S.	4	0.071	0.044	0.103	0.001
M.S.	4	0.223	0.106	0.072	0.011
V.S.	1	0.020	0.000	0.006	0.025
LMR	2	0.045	0.000	0.017	0.003
Average		0.105	0.050	0.060	0.012

As can be seen, the groundwaters have not been contaminated by the chemical pollutants most commonly associated with human activity and water quality degradation. Biological contamination has not been a factor in the West Gallatin area due to its semi-wilderness character.

Sewage disposal at Beaver Creek South or any other subdivision is the most important variable with respect to maintenance of ground and surface water quality.

Can-Tex Industries' diffused air type sewage treatment units are proposed. BOD* and suspended solids should be reduced 80 to 90 percent, and fecal coliforms reduced to 200 per 100 milliliters, thus affording the equivalent of secondary treatment. Plans and specifications for these sewage treatment units are available for inspection in the Helena office of the Water Quality Bureau. Wastewater disposal would be through the use of rapid infiltration ponds. Morrison-Maierle, Inc., consulting engineers, provided the following concerning the proposed disposal system:

> *Two percolation ponds are proposed, each containing 20,000 square feet of bottom area. The percolation area will be topsoiled and planted to Reed Canary grass. Maximum dosing rate of secondary treated effluent would amount to approximately 0.10 ft/day (0.75 gal/sq.ft./day) under initial development to 0.466 ft/day (3.50 gal/sq.ft./day) with ultimate development. The average rate would be 1/2 these values.*

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*Biochemical Oxygen Demand - a measure of the organic content of the sewage.

	INITIAL		ULTIMATE	
Population	150		700	
Plant Flows				
Average daily flow	15,000 gpd		70,000 gpd	
Peak flow	40 gpm		125 gpm	
	mg/l	lbs/day	mg/l	lbs/day
Sewage Quality				
Raw sewage BOD	200	26	200	120
Raw sewage SS	250	31	250	145
Design Efficiency - Treatment Plant				
Effluent BOD to percolation ponds	15-25	3	15-25	14
Effluent SS to percolation ponds	20-30	4	20-30	17
Extended Aeration Plant Components				
Design flow	15,000 gpd		70,000 gpd	
Aeration tank	15,012 gal.		70,000 gal.	
Aeration tank detention time	24 hrs.		24 hrs.	
Air capacity	52.2 CFM		270 CFM	
Blower	3 HP		one at 3 HP one at 5 HP	
Clarifier volume	2,872 gal.		11,700 gal.	
Clarifier detention time	4.6 hrs.		4 hrs.	
Clarifier surface loading rate	237 gal/ft^2		256 gal/ft^2	
Clarifier weir overflow rate	1,579 gal/L.F.		2,080 gal/L.F.	
Aerobic digester	3,393 gal.		16,000 gal.	
Aerobic digester - cu. ft./capita	3.05		3.05	
Chlorine tank	392 gal.		2,000 gal.	
Chlorine tank detention time	37.7 min.		40 min.	
Gas chlorinator capacity	100 lb/day max.		100 lb/day max.	
Percolation Ponds				
Number of ponds	2		2	
Bottom area, each pond	20,000 sq. ft.		20,000 sq. ft.	
Dosing rate (avg.)	0.375 gal/ft^2/day		1.75 gal/ft^2/day	

In order to evaluate the suitability of the land at Beaver Creek South for this type of sewage disposal system, geologic, hydrogeologic, and soils information must be analyzed. Geologic and hydrogeologic information were presented previously in this revised final environmental impact statement. In addition, Donald Alford, consulting geologist, prepared a report on factors influencing slope stability that was submitted by the developers. His general conclusions stated that:

> *The Gallatin Canyon area of Montana is characterized by virtually every type of mass-movement which is known to occur. These include rockfalls, rockslides, talus deposits, rapid and slow slumpage, earthflows and mudflows. It is apparent that if all development were proscribed in and near areas of mass-gravity movements, not even a road would now exist in the Canyon.*
>
> *It appears that a majority of the geomorpic features recognizeable as mass-gravity phenomena are quasi-stable under present environmental conditions which exist in the Gallatin Canyon. Most of them are presumably remnants of past periods of increased water availability at the surface, either from glacier melt or periods of increased precipitation. Some are undoubtedly the results of the 1959 Hebgen Lake earthquake. Certainly, there is no uniform state of conditional instability which would allow the development of regionally valid criteria for the determination of the type of construction which is possible on any given slope.*
>
> *The effects of human activities is equally indeterminate. While the construction of roads and buildings may constitute a sufficient cause for the initiation of slope instability, this is by no means a foregone conclusion. Under certain conditions, primarily when these activities result in a decrease in soil moisture, construction may even contribute to slope stabilization. It is quite likely that the construction of roads across convex slopes will probably invariably result in some slumping but, given a certain amount of care, this type of surface morphology can be avoided. This is primarily an engineering problem except in areas where some type of movement is occurring under natural, unmodified conditions.*

None of the area to be served by sewer systems or the proposed sewage treatment plant and percolation ponds is on land characterized by mass land movement, although ground of this type is in evidence in the SE 1/4 of Section 17. The potentially developed area at Beaver Creek South has been tentatively located so as to avoid these types of land forms and the problems Donald Alford enumerates that are associated with them.

From the GENERAL SOILS MAPS AND SOILS INTERPRETATION by J. A. Olsen, et. al. of the Montana Agricultural Experiment Station in Bozeman, the subject Beaver Creek South property contains three basic types of soil associations:

1. Bigel-Hobacker on the relatively flat lands on the north and east sides of the property.
2. Leavitt-Hanson on the near hilltop slopes of grades 20 percent and less.
3. Leavitt-Loberg on the lower steep slopes of the hill facing north and east with grades from 20 to 40 percent.

The Bigel-Hobacker Association is well drained, gravelly and cobbly soils and shallow gravelly soils. These soils are found on the nearly level terraces of the Gallatin River and the fan of Beaver Creek, a main tributary. These soils are suitable, with only slight possible limitations, for foundations for low buildings, with or without basements and show only slight possible limitations for roads, parking, lawns and landscaping. It is upon this soils association that the planned multi-family residences will be built. Also, the development sewage treatment plant and filter ponds will be located on these soils where possible limitations for this use are judged to be slight to moderate in the above-referenced GENERAL SOILS MAP OF GALLATIN CANYON.

The Leavitt-Hanson association is deep, well drained, stony loam soils. These soils are found on the 0 to 30 percent slopes at or near the top of the hill and on its upper north facing slopes. Moderate limitations are possible for foundations of low buildings on this soil association, particularly where the slope is excessive grade. There is no part of this planned subdivision that has been or will be laid out on the Leavitt-Hanson association of soil type.

The Leavitt-Lobert association is well drained, strong loam and clay soils. At Beaver Creek South, this soils association is found on the middle, steeper slopes of the hill on the southwest of the property. Development limitations on this soil is very similar and moderately greater to those expected with the Leavitt-Hanson association. The Leavitt-Loberg association soils are located on the north and east facing slopes where the grade is from 30 to 50 percent. There is no part of this planned subdivision that has been or will be laid out on the Leavitt-Loberg association of soil type.

In May 1973, 12 ten-foot deep soil test pits were dug at various locations on the subject property. The primary purpose of these pits was to determine if the groundwater in the spring would be within ten feet of the surface. No groundwater was found at any of the pits. In general, the loamy topsoil was found to be 12 to 18 inches deep, and the various soils below were generally cobbly, gravelly, deep and well drained.

Numerous wastewater facilities across the country are successfully utilizing percolation ponds or other methods of surface disposal of treated wastewater. Following is a brief summary of data collected from some of these facilities as related to loading rates, nutrient removal efficiencies and other pertinent information.

Flushing Meadows Project - Phoenix, Arizona

Reference - "Water Quality Aspects of Intermittent Systems Using Secondary Sewage Effluent" by Herman Bouwer, U. S. Water Conservation Laboratory, Phoenix, Arizona.

(a) Grassed percolation ponds (Bermuda Grass).

(b) Soil profile - 3 feet fine loamy sand underlying by coarse sand and gravel.

(c) Depth to water table - 10 feet.

(d) Infiltration Rates - 1 to 3 feet per day (7.5 to 22.5 gallons per square foot per day).

(e) Wastewater applied - secondary effluent.

(f) With inundation periods of two to three weeks, the nitrogen was reduced between 1 and 3 milligrams per liter at 20-foot depth test wells located 100 feet from the percolation ponds. Phosphates average about 1.5 milligrams per liter at the same test wells.

Robert A. Taft Water Research Center - Cincinnati, Ohio
Reference - "Soil Systems for Liquid Waste Treatment and Disposal: Environmental Factors" by Warren A. Schwartz and Thomas W. Dendixen, WPCF Journal, April 1970.

(a) Lysimeter studies with and without vegetation.

(b) Vegetation used - Reed Canary Grass.

(c) Soils - Ottawa silica sand and Downs silt loam.

(d) Unsaturated depth of soil - 5 feet represents an adequate depth in most situations.

(e) Wastewater applied - Secondary trickling filter effluent.

(f) At loading rate of one gallon per square foot per day on bare soil, phosphorous removal was 98 percent, ammonia nitrogen 96 percent, and total nitrogen 48 percent.

(g) At loading rate of one gallon per square foot per day on Reed Canary grass, phosphorous removal was 99 percent, ammonia nitrogen 96 percent, and total nitrogen 85 percent.

(h) Vegetation on soil surface increases hydraulic longevity by a factor of two.

(i) Biological treatment is the main victim of cold weather. The adverse effects of cold weather operations can be overcome by achieving biological maturity in the system prior to the onset of the cold season.

(j) Over 99 percent of plant nitrates and 92 percent of the total plant nitrogen is lost to the atmosphere when the grass is burned.

San Francisco Bay, Chicago - South End Lake Michigan, Southeastern Michigan, Cleveland-Akron Metropolitan and Merrimack River Basin Areas
Reference - "Assessment of the Effectiveness and Effects of Land Disposal Methodologies of Wastewater Management," Wastewater Management Report 72-1, U. S. Army Corps of Engineers, January 1972.

(a) Wastewater applied - secondarly effluent.

(b) Rapid Infiltration Ponds - Design loadings suggested up to 330 feet per year (6.8 gallons per square foot per day average).

(c) Removal of BOD and SS in rapid infiltration ponds is very effective - over 99 percent.

(d) Rapid Infiltration Ponds with Grass - field results: Case 1 - Application 3 feet per day (22.5 gallons per square foot per day) 14-day infiltration, 14-day rest, silty sand soil with 2 percent clay, total nitrogen removal is 80 percent, phosphate removal is 62 percent. Case 2 - Application 4.5 feet per day (34.5 gallons per square foot per day) 6-month infiltration, 6-month rest, sandy soil with 0 percent clay, total nitrogen removal is 92.4 percent, phosphate removal is 92.5 percent.

(e) Estimated Effectiveness of Rapid Infiltration Ponds - Application 330 feet per year (6.8 gallons per square foot per day) 10 days infiltration, 4 days rest, sandy gravel soil with continuous vegetation, nitrogen removal is 80 percent, phosphate removal is 90 percent.

(f) Volatilization of nitrogen gases through biological nitrification - denitrification remains the major mechanism of nitrogen removal in rapid infiltration ponds.

(g) An increasing clay content in the soil will increase denitrification and nitrogen and phosphate removal by adsorption.

(h) The nitrogen removal in rapid infiltration ponds is mainly governed by the period the basin is inundated. A longer period gives a better balance between aerobic and anaerobic conditions necessary for nitrification-denitrification. However, prolonged inundation periods, which create permanent aerobic conditions, should be avoided.

Miscellaneous Projects

Reference -"EPA Studies on Applying Sludge and Effluent to the Land," by Curtis C. Harlin, Jr., Chief, National Water Quality Research Program; Robert S. Kerr, Environmental Research Laboratory, EPA, Ada, Oklahoma, Compost Science, July-August, 1973.

Infiltration-Percolation Studies

(a) Four projects studied in the southwestern states and two projects in the north central states.

(b) Denitrification in the soil plays a major role in obtaining nitrogen removal.

(c) Results of the colder north central states projects were similar to those observed in the southwest although climatic and soil differences necessitate different rates of loadings.

(d) Short flooding and drying cycles resulted in high nitrate concentrations in the groundwater immediately under the percolation site.

(e) Longer flooding periods resulted in total nitrogen removal at one north central site of 70 percent and 90 percent near Pheonix.

(f) Quote - *Our experiences from these projects indicate the infiltration-percolation approach can be utilized effectively to achieve specified levels of tertiary treatment at selected sites.*

Overview

Reference - "Wastewater Treatment and Reuse by Land Application" - EPA - 660/2-73-006a, August, 1973.

Infiltration-Percolation Ponds

(a) Infiltration Rates - Moderate - Four inches to 60 inches per week (0.35 to 5.5 gallons per square foot per day). High rate - Five feet to 10 feet per week (5.5 to 11 gallons per square foot per day).

(b) Soils with infiltration rates of four inches per day to two feet per day or more are desirable for percolation ponds.

(c) Phosphorous removals generally range from 70 to 90 percent depending on physical and chemical characteristics of the soil that influence retention of phosphorous.

(d) Nitrogen removals are generally poor unless specific operating procedures are established to maximize denitrification.

(e) Increased nitrogen and phosphorous can be removed with vegetation through plant uptake with harvest.

(f) At Lake George, New York, phosphorous retention in some percolation ponds appears to have been exhausted through ten feet of soil. The system has been operating about 35 years at moderate rates of 7 to 15 inches per week.

(g) At Lake George, the snow and ice do not present serious problems. As the basins are flooded, the ice floats seven to eight inches and serves to insulate the soil surface from further lowering of temperature.

(h) Infiltration-Percolation - Use in cold climates-excellent.

Penn State Project

Reference - "Crop Selection and Management Alternatives - Perennials," by William E. Sopper, Penn State University, Proceedings of the Joint Conference on Recycling Municipal Sludges and Effluents on Land, July, 1973.

(a) Perennial grasses appear to be the most suitable for wastewater disposal.

(b) Secondary effluent applied to Reed Canary grass, all seasons.

(c) Average application - two inches per week, 1965 - 1970.

(d) During six-year period, 2,127 pounds of nitrogen were applied to Reed Canary Grass. A total of 2,071 pounds were removed in the harvested crops, resulting in a renovation efficiency of 97.3 percent.

(e) Annual renovation efficiencies on phosphorous varied from 24 to 63 percent.

(f) Quote - *In summary, it appears that there is sufficient evidence to indicate that perennial grass management systems are adaptable to municipal wastewater, . . . and that the wastewater can be satisfactorily renovated.*

Overview

Reference - "Treatment Processes and Environmental Impacts of Liquid Waste Disposal on Soil," by Eugene B. Welch and Demetrios E. Spyridakis, Fourth Annual Environmental Engineers' Conference, Montana State University, February, 1973.

(a) Plant uptake of phosphorous and nitrogen combined with biological and chemical immobilization of phosphorous and volatilization of nitrogen through biological and/or chemical denitrification, and escape of ammonia from alkaline soils, and nitrate leaching provide the main mechanisms for nitrogen and phosphorous removals from soil solution.

(b) Eighty to 90 percent nitrogen removals by soil systems are indicated by values obtained the last 15 to 20 years in comparable experimental systems under a variety of environmental conditions.

(c) Efficiencies of nitrogen removal may be increased (greater than 90 percent) and maintained for many years by additions of organic carbon.

(d) A high carbon-nitrogen ratio will accumulate nitrogen in the soil minimizing loss through leaching. Increased soil organic matter will also maintain or improve soil structure, increase the potential for plant uptake and aid aeration and water flow processes.

Summary Report

Reference - "Project Report of Pilot Studies on the Use of Soils as Waste Treatment Media" (1962-1967), by Warren A. Schwartz, Thomas W. Dendixen and Richard E. Thomas, FWPCA, July, 1967.

(a) Vegetation on soil - Reed Canary grass and soil removed 85 percent of the total nitrogen dosed versus 48 percent for bare soil.

(b) Burning of the grass resulted in 91.7 percent of the total nitrogen lost to the atmosphere.

(c) Cold temperatures tend to suppress biological activity in the winter but also produce several other effects. Snow or ice can serve as insulation for the surface for ice frequently forms a bridge over the surface with the pond liquid infiltrating out from under it.

(d) Nitrification is suppressed with cold weather startup of infiltration systems. Summer startups provide a more mature biological system resulting in better overall seasonal removals of total nitrogen.

The U. S. Forest Service alleged that Brelsford and Associates have made most favorable interpretations of J. A. Olsen, et. al. GENERAL SOILS MAPS AND SOILS INTERPRETATION and questioned whether the single-family residences and neighborhood commercial area would be confined to the Bigel-Hobacker soils. The sewage treatment plant and percolation ponds would be located on Bigel soils. The neighborhood and commercial area and some of the single-family residences will be located on the Bigel-Hobacker Association soils. Part of the single-family residences would be constructed on Leavitt-Loeberg and Leavitt-Hanson associations.

With respect to the matter of sewage disposal, Dorothy Bradley made the following comments concerning the draft environmental impact statement:

> *Information was definitely insufficient on the matter of sewage disposal. P. 11 of the EIS states that "the proposed method of wastewater disposal is still under review by the Water Quality Bureau." How is the public supposed to evaluate something on which the agency has made no determination? The EIS would have it appear as a relatively simple matter, saying on P. 14, "when it is determined what pond area and dosing rates of wastewater from the sewage treatment would insure the quality of ground and surface waters, then the proposed development would appear to meet the concept criteria required . . ." This conflicts with another agency which states on P. 12 that "unless at least tertiary sewage treatment is planned, it is my feeling that in time water quality degradation will occur in the watercourse in the area even though the seepage ponds are located quite far away from either stream."*
>
> *Part of the purpose of the EIS is to present to the public information and agency evaluations regarding decisions that are to be made. Information on waste treatment should not be skimped. Agency conflicts should be cleared up or, at least analyzed.*

It would appear that Ms. Bradley's primary objection to the discussion of sewage disposal in the draft environmental impact statement was not a matter of insufficient information but the fact that the Water Quality Bureau had not made an irrevocable decision concerning the future course of action. If a decision had been reached, an environmental impact statement would have been a means of justification and not in compliance with the Montana Environmental Policy Act. If an irrevocable decision had been reached, no environmental impact statement would have been prepared, for the environmental impact statement process should be a predecision methodology to assure a reasoned and balanced judgment about the effects of a project before it is begun.

The Montana Department of Fish and Game, the Northern Rockies Action Group and Dorothy Bradley have expressed interest in a tertiary treatment system in their responses to the draft environmental impact statement. There is much public misunderstanding concerning tertiary treatment as many consider this to be a magic cure-all for complex problems.

In reality, tertiary treatment is partial removal of pollutants not removed by conventional biological secondary treatment processes. Here, removal implies a reduction in concentration of pollutants--not complete removal. These pollutants would include suspended solids, biochemical oxygen demand, refractory organics, nutrients (nitrogen and phosphorus) and inorganic salts. Depending on the tertiary treatment needs, the unit operation(s) could consist of something simple like filtration or complex like chemical coagulation, reverse osmosis or electrodialysis. In the case of percolation ponds, the soil system and vegetation is a tertiary treatment system.

Reed Canary grass is a hearty plant that can withstand large quantities of water. The grass is being used primarily for nutrient removal; however, improved percolation is a secondary benefit. Tests have shown that the infiltration rate can be 25 percent higher in a grass-covered basin than in a bare soil basin.

High percentages of phosphate removal are expected through plant uptake and adsorption by soil particles. The depth of soil column to the groundwater is more than generous for this purpose.

Nitrogen removal is probably the item of most concern and will require some care in operation and management to accomplish desired results. The direct uptake of nitrogen by the grass roots for Reed Canary grass is estimated to be about 200 pounds per acre per year. (U. S. COE Special Report 171, May 1972 states 226 pounds per acre per year for Reed Canary grass). Possibly more significant than plant uptake is nitrigen removal by biodenitrification, an anaerobic process where nitrates are reduced mainly to nitrogen gas which escapes to the atmosphere. Studies conducted by Herman Bouwer at the Flushing Meadows Project in Arizona determined that this nitrogen removal process contributed to the largest portion of nitrogen removed. However, they were loading the percolation ponds at extreme rates, averaging about seven and one-half gallons per square foot per day, which contributed for more nitrogen than the grass roots could possibly take up.

High percentages of nitrogen removal do not take place with frequent, short inundation periods when complete aerobic conditions prevail. However, there is significant nitrogen removal for longer inundation periods when oxygen is limited allowing denitrification of the nitrates present. Since the loading rates at Beaver Creek South will be considerably less than the regular high rate percolation ponds, it is expected that a higher percentage of the nitrogen removal will be by plant uptake. However, during the winter months, the denitrification process, along with adsorption by the clay fraction, would play a more important role.

Careful scheduling of inundation and dry-up periods of the percolation ponds is important to achieve the highest degree of nitrogen removal. Longer inundation periods are desirable for nitrogen removal in grassed basins where nitrogen loadings exceed uptake capacities of the grass. Dry-up periods, however, are necessary to allow oxygen to enter the soil for the aerobic bacteria that decompose the organic waste matter and to obtain a recovery in the infiltration rate.

Assuming a total nitrogen concentration in the secondary effluent at Beaver Creek South of 20 milligrams per liter, the total annual nitrogen applied would amount to about 910 pounds at the initial development (design flow is 15,000 gallons per day) and about 4,250 pounds at ultimate development (design flow is 70,000 gallons per day). Plant uptake for Reed Canary grass would remove perhaps 200 pounds per acre. To provide the necessary area for complete plant uptake of the nitrogen would require in excess of 20 acres at design flows, which is beyond the limits of a percolation pond. Biological nitrification-denitrification and adsorption must then be relied on to remove the larger portion of the nitrogen.

It is proposed that the percolation ponds be inundated and dried on 14-day cycles. The rise or mounding of the groundwater table as a result of this disposal system is expected to be minor.

In addition to improving nutrient removal and providing better percolation capabilities, the Reed Canary grass will provide additional benefits in reducing water content through evapotranspiration. The grass vegetation will also offer some protection against freezing.

Two percolation ponds of 20,000 square feet each are planned for both initial and ultimate development. Dosing rates at ultimate development would still be low compared to rates commonly used. However, additional percolation pond area can be added after gaining operating experience, if it is determined that the additional area will benefit treatment.

Since percolation ponds have not been used to a great extent in this part of the country, any such system would require monitoring wells to ascertain any effect on groundwater. Two to the east of the ponds and one north of the ponds would be necessary.

These wells would be tested every three months, and the BOD, suspended solids, nitrogen, phosphorus, and fecal coliform count would be reported to the department along with data on the total weekly flow from the treatment plant. The sewage treatment plant and wastewater disposal system would be adjusted pending the data obtained from the test wells.

Any sewage disposal system that requires maintenance needs careful management. The Beaver Creek South Association, which would comprise the lot owners, would be responsible for operation of the sewage treatment plant. A qualified operator would have to be hired to maintain the plant. Since this sewage plant would serve ten or more families, the operator would have to pass an examination and be licensed by the Montana Board of Certification of Water and Wastewater Operators.

The vegetation would have to be harvested from any type of surface disposal system, whether it be an infiltration pond or irrigation system.

Probable Impacts of the Project on the Environment

Impacts from development of this property would undoubtedly fall within the range associated with the residential use of a mountain valley. A visual impact would certainly result from the proposed development. The severity of this visual impact is purely speculation, and the desirability is a matter of personal aesthetic values.

The Department of Natural Resources and Conservation had the following comments concerning the visual impact of the proposed development:

> *We agree that the visual impact of the proposed development is, to a degree, open to speculation and a matter of personal values. However, the Final EIS should acknowledge the fact that the Gallatin Canyon is widely renowned for its scenic, natural beauty, unmarred by extensive development. The placement of subdivisions within the scenic canyon setting, therefore, has a far more serious visual impact relative to similar developments within or near urbanized areas.*

The department will acknowledge the fact that the Gallatin Canyon is a widely renowned area noted for its scenic beauty that has not, until the last several years, been subject to extensive development. Any development, including the proposed Beaver Creek South, placed within this scenic canyon setting would be considered aesthetically offensive by a majority of people.

The U. S. Forest Service stated:

> *The Beaver Creek development is not adjacent to National Forest land. Effects on National Forest land will be secondary in such forms as increased pressure for the 161 KV powerline, highway 191 improvement, use of National Forest lands for various recreation purposes, etc.*

The Northern Rockies Action Group made the following comments with respect to probable environmental impacts on the environment of the proposed subdivision:

> *. . . where the Department does engage in its own analysis, the language used is primarily canned. For example, it is reasonable to assume without knowing anything besides the location of this development that the impacts would "undoubtedly fall within the range associated with the residential use of a mountain valley." However, this kind of*

> *statement does not come close to satisfying the requirements of the Montana Environmental Policy Act and the guidelines prepared thereunder. A rather rigorous balancing analysis of costs and benefits of residential use of a mountain valley should be undertaken. Absent this kind of analysis, the statement is not in compliance.*

Admittedly, some language used in the preparation of an environmental impact statement for a subdivision sounds "canned" as the impacts of one subdivision may be similar in some respects to impacts of others.

Economists have not developed an acceptable process to place on economic evaluation on such intangibles as aesthetics. The severity of a visual impact is still the "canned" speculation and the desirability a matter of personal aesthetic values.

The SE 1/4 of Section 17 has been recently grazed by livestock. Although no range survey has been completed on this site, other areas with similar climate, soils and vegetation require four to seven acres per animal unit month, depending upon range conditions and trends. This land would not be usable as pasture should the subdivision proceed as planned.

The Montana Department of Fish and Game reports that the proposed subdivision and the immediate area currently winters in the vicinity of ten elk plus deer and moose. Game birds are also present. The Montana Department of Fish and Game offered the following comments before the draft environmental impact statement was released.

> *One of our greatest concerns with development within the Gallatin Canyon is the destruction of wildlife range. Any development in this area destroys the potential of maintaining wildlife in their existing numbers. The Beaver Creek South subdivision is no exception and will reduce the carrying capacity of the area for wildlife.*
>
> *The other factor related to wildlife when establishing a subdivision is the fact that people concnetrations tend to change the use of much more area than just where they physically live. For example, at the present time people living on*

> *the south end of the Gallatin Game Range plus the trustees of the Ophir Grade School complain about hunting on the Game Range. The Gallatin Game Range was purchased by Montana Sportsmen for raising elk and other wildlife and hunting. This purchase was made before any extensive development occurred in the area and people who later built in the area knew it was a Game Range. Yet, now they are complaining about hunting. This reminds me of people who build close to an airport and then complain about the airplane noise. The Beaver Creek South subdivision is also located adjacent (The Montana Fish and Game owns the rest of Section 17) to the Gallatin Game Range and in the future people will no doubt attempt to change the long established hunting use of a large part of the general area. A few people may have an effect on the entire Montana hunting public. This same problem can be further pointed out by a proposal by The Big Sky Corporation to make a large portion of the West Fork of the Gallatin River a game refuge and allow no hunting.*
>
> *The report you furnished indicated there would be a central sewage treatment facility but no real details were available. I cannot really accept or reject this method of sewage treatment until more details are available. Unless at least tertiary sewage treatment is planned, it is my feeling that in time water quality degradation will occur in the watercourse in the area even though the seepage ponds are located quite far away from either stream.*

The question of sewage disposal was considered earlier in this statement. It should be noted the Montana Department of Fish and Game did not offer additional comments in response to the final environmental impact statement. The Gallatin Sportsmen's Association did respond stating their concern for the adverse environmental impacts the proposed subdivision would have on wildlife.

> *We appreciate the opportunity to comment on the draft environmental impact statement for the proposed Beaver Creek South subdivision in Gallatin County. Our main concern is for wildlife, mainly elk, in the area of the subdivision and adjacent to the subdivision.*

Wildlife provide a major source of recreation in the Gallatin. Recreation hunting has been a traditional and necessary form of wildlife management for years. For 75 years, Montana Sportsmen have invested their money in management programs for the benefit of wildlife, people and recreation. The Beaver Creek South subdivision is adjacent to the Gallatin Game Range which was acquired for wildlife winter range and hunting in 1951 with sportsmen's money generated by hunting license fees and excise taxes on sporting arms and ammunition.

Since 1951 more extensive development has occurred in the area and the newcomers are already complaining about the hunting on the game range and adjoining public land. While we share their concern we must remind them that hunting has been an established use of wildlife on public lands since Montana became a state. We suggest it be mandatory that subdivision developers inform prospective buyers of the fact that hunting on public lands is an established right!

Environmental impact statements often convey the feeling that wildlife is not disturbed by development and merely move to another part of the forest and live happily ever after. Such a feeling has no basis in fact and demonstrates a lack of appreciation for wildlife ecology. Most Montana wildlife, especially the big game species, require habitat with wilderness type characteristics. Development in one form or another and the year long people activities associated with development can effectively stop wildlife production in the impacted area. The area of impact is always a much larger area than that occupied by the development alone. Eventually, development will stop the production of the wildlife dependent upon the area and their contribution to the wildlife population will be lost forever.

The development of land in wildlife winter range areas, such as Beaver Creek South subdivision, may also result in considerable economic loss to Montana. A recent publication indicates that wildlife in the area of the proposed subdivision would yield between $50 and $100 million in benefits over the next 35 years[1].

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[1] *1974 The Gallatin Area, Bulletin 344, Gallatin Canyon Study Team, National Science Foundation, Cooperative Extension Service, Montana State University, Bozeman, Montana*

> *To realize the benefits we will need to protect the wildlife habitat, especially the winter range in the Gallatin. Also, a basic problem must be recognized--wildlife habitat cannot simultaneously be used for both wildlife under natural conditions and for development of subdivisions in or near the wildlife habitat.*
>
> *If Big Sky of Montana, Inc. feels that this subdivision is necessary to their operation, we suggest it be moved into the West Fork area closer to Big Sky where wildlife is already relegated to a minor land use.*
>
> *Montana citizens and sportsmen are concerned about land use control in relation to wildlife range. Unfortunately, concern has not been enough and the legislature "dropped the ball" when it came to seriously considering wildlife in laws dealing with planning and approving subdivisions. However, we hope the State of Montana will show concern, pursuant to the Montana Environmental Policy Act, for wildlife, for recreation and for our investment in wildlife that was made for the benefit of all people.*
>
> *Our Association is not in favor of approving this subdivision because of the adverse impact on wildlife and on public recreation associated with wildlife.*

The U. S. Forest Service echoed the Department of Fish and Game's concern for the adverse impact the proposed subdivision would have on wildlife and added that the development would further restrict game movement, particularly elk. The Northern Rockies Action Group also lent support to the Gallatin Sportsmen's position on wildlife and the proposed subdivision.

It is true, as the Gallatin Sportsmen's Association comments indicate that the legislature did not pass legislation which would authorize consideration of wildlife habitat in the planning and approval of subdivisions. The subdivision review authority vested with the Department of Health and Environmental Sciences is given in Section 69-5001 through 69-5005, R.C.M. 1947, as revised by Chapter No. 509, Montana Session Laws 1973, House Bill No. 465. This review authority encompasses water supply, sewage disposal and solid waste disposal. In addition, there are the sections of the codes that concern water quality that may be directed toward subdivision review.

However, the state of Montana did not show a complete disregard for wildlife or any other environmental or land use concern. Chapter No. 500, Montana Session Laws 1973, Senate Bill 208 as amended in 1974 by House Bill 1017 is an act requiring local governing bodies to adopt subdivision regulations and in default thereof providing for the promulgation of departmental assessments; providing for the administrative establishment of procedures and requirements for preparation of subdivision plats; setting forth requirements for surveying and platting divisions of real property and for recording surveys and plats; providing for surveying, platting, and subdividing generally.

Under this legislation, public hearings are to be advertised and held at a convenient location. The concerned public and governmental agencies are afforded an opportunity to voice their concern relating to a proposed subdivision and bring environmental facts to the attention of the planning boards and county commissioners. A notice of hearing was published concerning a public hearing for Beaver Creek South, which was held on October 11, 1973. The planning board granted preliminary plat approval subject to staff recommendations. One of these recommendations was that final approval be subject to Department of Health and Environmental Sciences approval of water and sewer systems. Don Bianchi, regional information and education officer for the Montana Department of Fish and Game, submitted a letter on possible infringement of wildlife habitat and asked for more details on sewage disposal systems. No other comments were received. On January 10, 1974, an advertised public hearing was held concerning the seven-lot Phase II of Beaver Creek South. Apparently, no comments were received.

Therefore, there is an opportunity to effect rejection or revision of a subdivision for environmental reasons at the county level. This would appear to satisfy the spirit in which the Montana Environmental Policy Act was enacted.

Previous to the preparation of the draft environmental impact statement, Mr. Paul R. Devine, Chief of the Planning and Research Bureau, Montana Department of Highways, was consulted concerning the effect the proposed development would have on U. S. Highway 191. Following is his analysis:

> *If this subdivision is developed to its full potential of 174 dwelling units, it is estimated that these dwellings will create approximately one thousand additional trips on U. S. 191. It is assumed that approximately 90 percent of these trips or 900 vehicles per day would use our highway to the north. The present traffic volume on U. S. 191 near this development is 1,065 vehicles per day. The average daily traffic on U. S. 191 just north of the Big Sky resort amounts to 1,240 vehicles per day. It is estimated that due to the recreational characteristics*

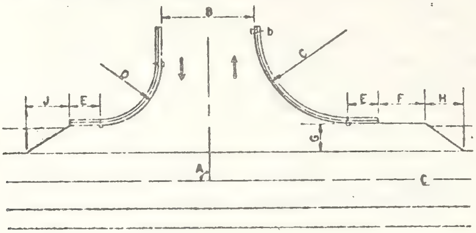
> *of this highway, traffic will increase at the rate of approximately four percent per year for the next twenty years. Assuming this increase and adding in the additional traffic generated by this proposed development, the 1993 traffic volumes would be 3,200 south of Big Sky and approximately 3,600 to the north. These volumes will not warrant the construction of a four lane facility in this vicinity.*

In response to the draft environmental impact statement, the Montana Department of Highways sent the following comments:

> *Reference is made to your draft environmental impact statement dated April 8, 1974 on the subject subdivision. As pointed out in the statement, this subdivision will generate a large amount of traffic that will utilize U. S. 191.*
>
> *After reviewing the subdivision plat in your office we have the following comments.*
>
> 1. *Access to U. S. 191 should be limited to one approach at highway station 894+51 ± (Twin Antler Drive).*
>
> 2. *The approach at this point should be in accordance with the Montana Department of Highways Approach Standards for Montana Highways. The attached page 26 from this manual illustrates what would be an acceptable approach in this particular situation. It is recommended that 55 MPH speed be used for determining "F".*
>
> 3. *With the approach at Twin Antler Drive, there are adequate interior roads to serve the subdivision without allowing any other access to U. S. 191. The commercial area should be served from the proposed frontage road adjacent to U. S. 191.*
>
> 4. *It is requested that future statements include a general location map and a copy of the proposed subdivision plat.*

PUBLIC ACCESS APPROACH
RIGHT TURN LANE & TAPERS

The applicant shall provide right-turn lanes or tapers as part of an approach or driveway system if the department determines that such right-turn lanes or tapers are required to minimize congestion or hazard on the highway caused by vehicles entering the applicant's approach. A right-turn lane shall be preceded by a taper. The design feature dimensions of a right-turn lane and taper shall conform to those shown below.



RIGHT·TURN LANE AND TAPERS

Design Features		Curbed Highway		Uncurbed Highway	
		Standard	Range	Standard	Range
	E	10 ft	no range	10 ft	no range
Right-turn Lane Length	F	* *		* *	
Right-turn Lane Width	G	12 ft	10 to 15 ft	12 ft	10 to 15 ft
Entering Taper	H	150 ft *	50 to 150 ft	150 ft	50 to 150 ft
Exiting Taper	J	not applicable		50 ft	50 to 150 ft

*** If a right-turn lane is used, the Entering Taper standard shall be 50 ft. Without a right-turn lane, the Entering Taper standard shall be 150 ft.**

The standard shall be used unless engineering judgment determines that another dimension within the range is more suitable for a particular site or special condition and is approved by the department.

* * TO DETERMINE F		
HIGHWAY SPEED M.P.H.	RIGHT TURN LANE F (FT.)	TAPER (FT.)
25	75	50
	0	150
30	100	50
	0	150
35	125	50
40	175	50
45	225	50
50	275	50
55	325	50
60	400	50
65	475	50
70	550	50

It is anticipated that Beaver Creek South Association will comply with the recommendations of the Montana Department of Highways. A permit is necessary for access to this primary road. It would undoubtedly not be issued if the approach at Antler Drive did not meet specifications.

Objection to the Department of Highways analysis of the proposed subdivision's impact on the U. S. Highway 191 was voiced by the U. S. Forest Service.

> *The treatment of the effect on traffic is very incomplete. No date is placed on the ADT's given. I would assume these figures are current. In 1971 the State of Montana Highway Department estimated the present highway will carry 4,500 ADT. At that time they said that in 1969 an average increase of 43 cars per day each year without Big Sky or an ADT in 1980 of 3,181 cars. Big Sky traffic by 1980 was estimated at 600 additional cars per day or 3,781 ADT. Today we have Beaver Creek South with an estimated 900 ADT for a total of 4,681 ADT. An additional figure should be added to this total for subdivisions proposed or approved since 1971 such as proposed Karst #1 and the approved Ken McBride subdivision in the West Fork.*
>
> *The State of Montana Highway Department should reevaluate their projections for this proposal and total use of this Highway taking into consideration peak periods of use. They appear to have used yearly average figures rather than peak figures and have not adequately considered the effect of other developments when they estimate a 4% increase per year to 1993; nor are they consistent with past projections.*
>
> *Use of Highway 191 in the Gallatin Canyon may be approaching capacity during peak periods of the day now. Motor vehicle accident figures and deaths have increased many fold in the last five years. Beaver Creek South will intensify the problems. The report should accurately quantify these additional traffic problems and weigh their consequences including the consequences of a 4 lane highway.*

Comments on the effect the proposed subdivision would have on U. S. Highway 191 were also received from the Department of Natural Resources and Conservation.

Page 13, Vehicle Impact. The Department of Highways' comments give the full development level for the subdivision as 174 dwelling units; elsewhere in the Draft the developer affirms that 200 dwelling units will be possible if the subdivision is fully developed. Therefore, the Department of Highways traffic figures may be somewhat understated if based upon 174 units.

It would be useful information if the threshold level were given for that average daily traffic (ADT) which would warrant road widening or the construction of a four-lane highway in the canyon. The Department of Highways projects future traffic in the canyon for 1993 as 3,600 vehicles per day. This figure assumes a 4 percent annual growth in the present traffic volume of 1,240 vehicles per day for an increase to 2,717 vehicles by 1993. The 900 additional trips generated from Beaver Creek South are added to 2,717 giving a total of 3,617. If the 900 figure is added at the beginning of the 4th year rather than at the end of the 20th year, a traffic volume for 1993 is 4,470 rather than 3,600. Using either a figure of 3,600 or 4,470, the carrying capacity estimated by the Department of Highways for the present canyon highway of 4,500 vehicles per day is being approached.[1]

The estimates for 1980 summer ADT prior to the advent of the Beaver Creek South subdivision is 3,781[2]*. If the additional traffic volume from Beaver Creek South of 900 is added to this assumed traffic flow it appears that within 10 years, summer traffic could exceed the present capacity of the highway!*

Although we are unskilled in estimating future traffic flows, it would seem that some discussion should be given to the adequacy of using a 4 percent annual increase in traffic when it seems possible to estimate the load more exactly from subdivision activity underway or planned such as was done for Beaver Creek South. For example, the Draft EIS for the Cascade Subdivision at Big Sky, September, 1973, states that this one

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[1] *The Murray-McCormick Environmental Group, Gallatin Canyon Final Report, (1972). p. 180*

[2] *Ibid. p. 132.*

> *subdivision will accommodate 363 single family homes, multiple homesites for 420 families; and that between 950 and 1,000 condominium units would eventually be included.[3] If Beaver Creek South will increase ADT by 900, it should be possible to estimate the increased ADT from this subdivision as well as provide a seemingly better estimate of future traffic loads.*
>
> ---
>
> *[3] Montana Department of Health and Environmental Sciences Draft Environmental Impact Statement, Cascade Subdivision in Madison County, Sept. 20, 1973, p.1.*

The Northern Rockies Action Group adds:

> *A Department of Highways official is quoted saying that the projected volume from the Beaver Creek South and the Big Sky developments would not warrant construction of a 4-lane facility from the area. What volumes of traffic would warrant construction of a 4-lane facility? How many more subdivision units could the Department of Health approve in the Gallatin Canyon without warranting the construction of such a 4-lane road?*

The Department of Highways reaffirms their statement on the effects of the proposed subdivision on U. S. Highway 191. Paul R. DeVine, Chief of the Planning and Research Bureau, states that highways are designed to handle the 30th peak traffic flow and not the greatest peak traffic period.

It is the consensus of opinion that the ultimate factor that will control the amount of development in the Gallatin Canyon will be the capacity of the highway to handle the traffic load that would be generated. Beaver Creek South would add to the traffic load on the highway, but as the Department of Highways indicates, Beaver Creek South would not be the development that would make reconstruction necessary.

Again, the legislature has provided the public an opportunity to voice their concern and alter the course of events through the aforementioned S. B. 208 as amended by H. B. 1017.

On September 19, 1973, Robert Sewall, engineer for the Mountain Telephone Company in Big Timber, Montana, which serves the Big Sky area with telephone service, was contacted to confirm the company's ability to supply adequate and necessary telephone service to the proposed 200 living units at Beaver Creek South. The Mountain Telephone Company affirmed their ability to supply such service.

Montana Power Company (Mr. Dick Johnson) was also contacted to confirm the availability of electric power for lights, heating and 3/60/440 power for the sewage treatment plant. Mr. Johnson said there would be "no problem" in supplying the needs of the anticipated numbers of residents of Beaver Creek South.

Public criticism was received concerning the Montana Power Company statement such as this from the Northern Rockies Action Group.

> *A Montana Power Company official was quoted as stating that it would be no problem in supplying the needs of the anticipated number of residents of the Beaver Creek South subdivision. Does this "no problem" mean that the existing transmission lines are adequate to supply the needs of this development, or does it mean that the power company and thereby the Department of Health are banking on the construction of the proposed 161-kv line from Ennis?*

The U. S. Forest Service adds:

> *Forest Service contact with Montana Power Company does not support the quote of "no problem" in supplying the power needs of Beaver Creek South. John Cromer - Vice President for Electrical Operations in Montana Power at a 12/18/73 meeting with Forest Supervisor Hawkes told us that additional power service for the upper Gallatin Canyon, particularly Big Sky of Montana, would be needed by the fall of 1975. We have since received application for a 161 KV line from Clyde Park to Dillon to meet this and other needs. The developers of Beaver Creek South should be aware that this proposed powerline has not and may not be approved. Development of Beaver Creek should not be carried beyond the present power capacity in the Gallatin Canyon. If in fact all present power capacity is allocated, they*

> *should not proceed with their development until additional power is assured.*

The Department of Natural Resources and Conservation continues:

> *The proposed 200 homes, if of average size, with normal electrical use and heat, could contribute approximately 2.0 to 2.5 megawatts to peak energy demands. Additional energy demand will result from the commercial development and the sewage treatment plant.*
>
> *Montana Power Company's long-range plans indicate that in the near future, the Company wishes to apply to the DNR&C to construct an additional powerline of 161 kilovolts (KV) near the area of this proposed development. If an application is received, the Department has 600 days thereafter to study the proposal and make its recommendation to the Board of Natural Resources, who, has final authority to deny or approve the application. To date, no application has been received by the Department for this project.*
>
> *A statement is made in the Draft EIS that there would be "no problem" in supplying the power needs of development, however, it is not clear if there is presently no problem or if there would be "no problem" assuming the proposed 161 KV transmission line were approved and constructed.*

Dorothy Bradley concludes:

> *For example, a Montana Power Company representative is quoted saying that supplying energy for Beaver Creek South residents will be "no problem." No problem for whom? Will that source of energy depend on the proposed 161 kv line from Ennis to Big Sky? If so, it is a problem for those of us who are supporting inclusion of Jack Creek in the Spanish Peaks Wilderness proposal. No problem for MPC? I heard this past winter from a MPC lawyer in his presentation to the Environmental Quality Council, that an energy emergency would occur in the summer of '75 if plans for power plants in eastern Montana did not take place rapidly.*

> *He was requesting a waiver of the legally required time periods for public review of energy facilities.*

The development of Beaver Creek South would add to the total power needs of the area. Subsequent conversation with Dick Johnson of Montana Power Company reaffirms the fact that the proposed subdivision could be served without additional power lines but would be a contributing factor toward any future necessity for additional service.

Again, S. B. 208 as amended by H. B. 1017 is the avenue for public objection to a subdivision based on such things as availability of electrical service, that has not been utilized.

Mr. Jerry Beagley, State Forester for the Bozeman area, was contacted to determine the availability of firefighting assistance in the Big Sky area. There is a forest fire district in that area for fighting wild fires in the Gallatin Forest Fire Protection District, which does not include the SE 1/4 of Section 17, Township 7 South, Range 4 East. For structural fires of commercial and residential buildings, a rural volunteer fire district has been organized in the Big Sky area. They have operated for about two years and have a fire truck that was donated by Big Sky of Montana, Inc. Other equipment and supplies are provided for by donations and fundraising activities.

The U. S. Forest Service reaffirmed this in their comments:

> *The Gallatin Forest Fire Protection District does not include the land on this proposed subdivision and thus the U. S. Forest Service would not be responsible for wildland fire suppression on this property. Adjacent forested land is, however, within the fire protection district. The proposed subdivision would therefore have to depend on the volunteer fire district for both structural and wildland fire protection.*

For all practical purposes, there would be little in the way of fire protection at the proposed Beaver Creek South subdivision. The proposed method of supplying water does not include the installation of fire hydrants and the Big Sky fire truck is about six or seven miles distant.

Police protection for the residents of the development will be provided by the Gallatin County sheriff and the Montana Highway Patrol. However, the association may decide to hire its own security agent for added protection, such as was done at Big Sky of Montana. The Department of Natural Resources and Conservation had the following comments concerning police protection:

> *The final statement should clarify the comment that "the Association may decide to hire its own security agenty for added protection, in a similar manner to Big Sky of Montana." A recent news article pointed out that the salary of a deputy sheriff to be stationed at Big Sky will be paid by the public (Gallatin and Madison Counties). From what funding will the salary of Beaver Creek South's security agent be drawn?*

If Beaver Creek South were to hire a security agent, his salary would be paid by the property owners' association through annual assessments.

The Gallatin County sheriff said no additional staff would be hired to extend law enforcement to these developments or any others. He said that his staff is already "short-handed and run to death," and that subdivisions add to the over-extension of his responsibilities. Sheriff's deputies spend an increasing amount of time responding to "lost horse reports" and other problems in subdivisions, as stated by the sheriff.

Thus, the subdivision of this land apparently would not cost the county any more for law enforcement, but would result in generally poorer law enforcement elsewhere in the county. Eventually, increased population and re-distribution of existing population by subdivisions probably would cause expansion of the sheriff's staff.

Solid waste disposal for Beaver Creek South would be handled by a private operator out of Bozeman. Presently, Suhr Hauling Company is making garbage and solid waste pick-ups in the Gallatin Canyon three times a week. Solid wastes would be hauled to the Bozeman landfill disposal area by the firm.

The roads, parks, and sewage treatment system of Beaver Creek South will be privately owned and maintained by the property owners' association, Beaver Creek South Association. Funds for operating and maintaining the common elements and facilities of the development will be obtained by assessment of the property by the lot owners as provided for in the by-laws of the association.

The Department of Natural Resources and Conservation had this to say concerning covenants and the property owners' association:

> *The developers assert that development planning and architectural control are to be maintrained by a landowners' association and that land-use covenants will reduce the disruptive influence of the proposed subdivision upon the natural environment.*
>
> *A full discussion of the effectiveness of these control methods should be presented in the Final EIS. Such discussion should center on such questions as:*
>
> *(a) How is the landowners' association created and can it be dissolved?*
>
> *(b) What enforcement power does the association have?*
>
> *(c) Can the association modify or absolve the development plan or the restrictive covenants and, if so, by what means or procedures can this happen? and*
>
> *(d) Generally, are these restrictive covenants adequate to protect the natural environment? If not, where are they weak?*

The landowners' association would be comprised of the lot owners and is financed by an annual assessment. Enforcement of covenants or restrictions is the responsibility of the association. They may bring an action at law against a lot owner for violations. The restrictive covenants can be modified by an instrument signed by 70 percent of the lot owners.

As with most covenants, enforcement is most difficult. A neighbor is reluctant to take another neighbor into court. Therefore, compliance is usually voluntary. These covenants address such problems as architectural control, hunting prohibition, building size, open space and the like. These could reduce the visual impacts to this widely renowned scenic area, but they would not eliminate the impact.

The Department of Natural Resources and Conservation and Dorothy Bradley suggested an in-depth study into the effect the proposed 200 living units at Beaver Creek South would have on the Ophir School.

The assessed value of property or improvements need to be estimated in order to make some calculations. Other data that would be needed would be the area of the subdivision, number of lots, number of parcels with improvements, number of in-state and out-of-state owners, number of lots occupied year-round, number enrolled in school, number of registered voters, tax rates, school district tax levy, number of children in the district, and the number of taxed lots in the school district. Some of this information is not readily available. However, it can be stated that the same benefit-cost relationship does not continue with increased development of a subdivision. A subdivision may generate more revenue than its service cost at one stage of development but may generate less revenue than its service costs (without a tax increase) at another stage of development.

Some rough estimates can be made, however. The Ophir School had 59 students at the beginning of this school year with a total budget in excess of $68,000. The total cost per student is $1,163.67. This includes instruction costs, transportation, special education, bonded indebtedness, retirement and the like. If each living unit at Beaver Creek South were valued at $40,000, property tax revenue generated would be approximately $768 per living unit or approximately $153,600.

The office of the Superintendent of Public Instruction estimates that the average family has 8/10 student-age children. This means that approximately 160 school-aged youngsters, 110 of grade school age, could be expected to reside at the proposed subdivision. At current education expenses, it would cost $128,000± to educate these youngsters.

The Environmental Quality Council questioned the location of the commercial area.

> *If the proposed commercial area is intended to cater to neighborhood residents, i.e., residents of the proposed subdivision, why will it not be centrally located rather than along the edge of the subdivision on U. S. 191? Although the highway location may attract more customers, it would be less convenient to residents of the subdivision and would sacrifice some of the aesthetic qualities of U. S. 191 as a scenic highway.*

The proposed commercial area is intended to cater to residents of the subdivision, and the highway location is designed to attract other customers. However, there would be only one access approach to U. S. Highway 191, and the commercial area would be served from a proposed frontage road.

An analysis of the impact of the proposed subdivision would not be complete without consideration of the necessity for the development.

A statement from Big Sky of Montana, Inc. asserts their support of the proposed development and is hereby included as part of the environmental impact statement.

> *Big Sky at the present time has considerable difficulty arranging for employee housing of its employees. This does not take into account the additional housing problems faced by other persons employwed in the Big Sky area by contractors, sub-contractors and commercial lessees doing business at the Big Sky project.*
>
> *At the present time there is in excess of 600 people employed in the Big Sky area including the Big Sky personnel and those employed by others. At total build-out, Big Sky is expected to carry approximately 1000 full time employees in its payroll which will be augmented by construction personnel and other individuals employed by third parties. Big Sky presently has plans to complete in two phases, housing accommodations for approximately 176 employees in the Mountain Village and has already completed an employee housing facility for 50 people in the Meadow Village. Additionally, Big Sky has just completed a 42-pad mobil home park. If an estimate of three persons per trailer is made, we therefore will have a total of 342 accommodations for people in the Big Sky project. We are, therefore, seriously short of housing accommodations for employees and workers at Big Sky even at the present time. This, of course, does not include those persons who buy condominiums and/or lots within Big Sky--this number is expected to be relatively small in comparison with the total number of people for whom accommodations will be needed.*
>
> *Because of the unavailability of housing facilities in the future for a rather significant number of people, we certainly do welcome plans for the same to be provided by others with proximity to the*

> *Big Sky project--so long as they are compatible with the existing quality and architecture in the area. From what you have told me of your project, this certainly will be the case and we can only say that we wish to encourage you with your program and the sooner you can offer this type of residential--apartment housing, the sooner we will receive some relief from our employee housing problems.*

The Department of Natural Resources did not completely agree with the statement of Big Sky of Montana, Inc.

> *This statement supports the proposed development on the assumption it will help provide housing for employees of Big Sky and other individuals employed by third parties at Big Sky. Yet, the draft lacks an analysis of this statement and thereby leaves the reader to accept the conclusions as presented. If this statement remains in the final, then the Water Quality Bureau should address its validity.*
>
> *We have reservations whether the majority of employees at Big Sky and other associated workers could afford the lots or housing in this subdivision. And, if so, what will encourage them to purchase in Beaver Creek South rather than in Big Sky's subdivisions or condominiums? Obviously, Beaver Creek South would have to sell or rent real estate more cheaply, if Big Sky's employees are to prefer Beaver Creek South.*

Dorothy Bradley had the following comments with respect to the need for this subdivision:

> *I am concerned that part of the justification for Beaver Creek South is the housing needs of its neighbor, Big Sky. Will such reasoning not lead to a proposal for a new housing development to take care of the employees of Beaver Creek?*

The Environmental Quality Council offered the following comments on the subject of necessity of this proposed subdivision:

> *Compatibility "with the existing quality and architecture in the area", i.e., Big Sky, would probably put the price of a lot and structure in this subdivision beyond the reach of the average employee of Big Sky. A real question is whether this development will satisfy the housing shortage for Big Sky employees, or will cater to the same class of people that are attracted to Big Sky.*

Many have suggested that the price of a lot and structure may be beyond the reach of most employees of Big Sky, that the development would not solve the housing problems at the resort complex but cater to the same class of people that are attracted to Big Sky. This may be a valid statement but has no bearing on the decision whether or not to approve the plat.

Regarding cumulative impacts, the Department of Natural Resources and Conservation made the following comments:

> *Although it requires more time and effort, some consideration of the cumulative impact of the increasing subdivision activity in the Gallatin Canyon is needed. Environmental assessments should not be restricted to the impact of a particular subdivision but rather should reflect consideration of those in existence and to the potential for new subdivisions. Limited reviews provide only incremental assessments which may not describe the total situation. Incremental impacts can add up to significant impacts and, therefore, some effort must be given to assessing their cumulative effect. For example, one subdivision might, in itself, remove only an insignificant amount of wildlife habitat; however, several subdivisions in concert may remove a substantial amount of such habitat resulting in a major negative impact on wildlife.*
>
> *A helpful addition to readers of this statement would be a general location map together with a map showing the arrangement of development within the subdivision.*
>
> *Similar to other impacts, one subdivision adds only an incremental amount of degradation of natural beauty which, taken alone, may be acceptable. Nevertheless, increments often accumulate with the addition of each new development until unacceptable levels or thresholds are reached or surpassed.*

> *The Final EIS should, therefore, consider not only the direct impacts of this one proposal, but also the cumulative impacts of existing and potential subdivisions in a relatively pristine canyon setting.*
>
> *Although there would be adverse environmental effects on wildlife and, to many, a degradation of the aesthetic quality of the area, no legislative mandate is in effect which would give legal justification for refusing to grant subdivision plat approval on these grounds.*
>
> *This comment articulates a problem common to a number of agencies which are often obligated by law to approve actions that may have a significant environmental impact. MEPA mandates a broad consideration of all impacts associated with certain actions, Yet, in that it is necessary to operate within legislative guidelines, it is not always possible to avert certain impacts by disallowing an action.*
>
> *The regular occurrence of situations of this nature would suggest that new legislative guidance and direction is appropriate. A determination of the state's capacity to serve the long-term public interest can, in part, evolve from internal deliberations. Among these should be an assessment of the efficacy of given authorities and an examination of the need to propose certain statutory changes. Efforts of this nature on a continuing basis will hopefully enable the state to maintain its resource values and present quality of life.*

The point is well taken that some consideration is needed of the cumulative impact of increasing subdivision activity in Gallatin Canyon as incremental impacts can add up to significant impacts. This is something that is necessary in all of Montana. The Gallatin Canyon Study Team from Montana State University is addressing this problem. With funds from the National Science Foundation, they are studying the impacts of development on Gallatin Canyon. Reports are available to the public.

One important cumulative impact of interest to the department is that of increasing nutrient load in the Gallatin River from domestic wastewater sources. Practically all aquatic plants may be desirable at one time or another, and in one habitat or another. However, when they become too dense or interfere with water uses or aquatic habitat, they become nuisance growths. Under favorable environmental conditions, generally the more abundant the nutrient supply, the more dense the vegetation will be. With domestic wastewaters, the most common nutrients of concern are phosphorus and nitrogen.

There is very little reliable water quality information available on the Gallatin River. This makes it difficult to formulate final decisions; however, with the existing data, some general conclusions can be reached. For this evaluation, the following estimates and assumptions were made:

(1) Population estimates (not including Big Sky)

1974 canyon population 400

158 lots available now for development at three people per lot 474

Ultimate population of existing available lots* 874

*lots either platted with restrictions or with restrictions removed.

(2) Parkview West ultimate population (if approved) 100

(3) Beaver Creek South population (if approved)

Initial phase 150

Ultimate 700

(4) Miscellaneous development in near future . . . 100

(5) Sixty-five gallons per capita per day sewage contribution

(6) Annual sewage produced at Big Sky of Montana at ultimate development . . . . 95 millon gallons

(7) Average concentration of phosphorus in the wastewater . . . . 10 mg/l-P

(8) Average concentration of nitrogen in the wastewater . . . . 20 mg/l-N

(9) Low flow conditions in the Gallatin . . . . 120 cubic feet per second

(10) Soil treatment systems will remove 98 percent of applied phosphorus.

(11) Soil treatment systems will remove 50 percent of applied nitrogen.

(12) Concentrations of total phosphorus and nitrogen in the Gallatin River at assumed low flow are both 0.02 milligrams per liter.

Under the above conditions at ultimate development of Big Sky of Montana and the lows now available, the phosphorus concentration could increase from 0.02 milligrams per liter (P) to 0.0206 milligrams per liter (P), and the total nitrogen would increase from 0.02 milligrams per liter (N) to 0.0650 milligrams per liter (N).

If the additional development discussed above is realized, the projected phosphorus and nitrogen levels would increase to 0.0209 milligrams per liter (P) and 0.069 milligrams per liter (N).

The exact numbers arrived at by this exercise are highly speculative to say the least. However, it is important to note the significance of the concentration changes. The phosphorus changes are increasing by ten-thousandths while the nitrogen concentrations change by hundredths. Such small changes should not result in significant changes in the quality of the Gallatin River, and it appears that nutrient enrichment will not be the controlling cumulative impact for development of the canyon.

On February 17, 1971, the first meeting of the Gallatin Canyon Planning Study Committee was called to order by Mr. Perry Roys of the Department of Planning. This committee was an official body appointed by the governor to work with the Murray-McCormick Company, who was hired to do the planning for the Gallatin Canyon. In March, 1971, a technical advisory panel was appointed to assist the study committee. The advisory panel consisted of representatives of the Fish and Game Department, Soil Conservation Division, Water Resources Board, Highway Department, Department of Health, City-County Planning Board, Gallatin County Commissioners, representatives of the U. S. Forest Service, representative of Burlington Northern, and Mr. Gus Raaum, representing the Big Sky Corporation. There were also representatives of the State Department of Planning who were ex officio advisors and liaison personnel between the committee and the environmental consultants. The state-sponsored study program met regularly for about one year, and on July 14, 1974, the final report prepared by Murray-McCormick Environmental Group was presented. The report contained a list of general goals developed to establish the intent and direction of planning activity within the Gallatin Canyon. Under the community design section of the report, the following is stated:

> *Keep all future development in character with the special natural environment of Gallatin Canyon.*
>
> *Encourage site planning and building and landscape design to result in an attractive appearance from the highway, and a harmonious relationship among the various elements of the development and with the landscape.*
>
> *Establish development guidelines and visual standards for new construction, including guides for signing, highway and development treatments, exterior motifs, utility distribution lines, and screening vegetation.*
>
> *Take care not to obstruct important vistas and views within the Canyon. A variety of standards should be developed in order to achieve this purpose under different conditions.*
>
> *Develop land use alternatives designed to enhance the compatibility of existing and new land uses in the Canyon.*
>
> *Develop standards on signing and display advertising to establish certain size, color, and design limitations to blend with the natural environment.*
>
> *Provide adequate facilities for community services to residents and visitors in the Canyon.*

Visually screen mobile homes and recreational vehicles from major circulation routes.

The plan also designates those areas most desirable for residential development in terms of the identified land constraints and sensitivities. It is not the intention of the plan that residential development should occur only in the designated areas; however, they are designed as those areas most suitable for development under the identified parameters. They are meant to be used as a general guide in locating structures in the canyon. To reach the goals of maximizing attractiveness of the area and protecting the special scenic character, specific developments must be planned with care and imagination. Specific guidelines for residential development are set forth in the report. The report supports utilizing cluster-concept of site design and recommends that such developments be placed so as not to interfere with open meadows and be placed well away from wetland areas adjacent to stream channels.

The controlling element in terms of recommended residential density is expressed in the planning goals to keep Highway 191 a two-lane facility. Generally, the residential areas indicated in the plan are expected to accommodate one dwelling unit per ten acres. Here, the cluster-housing concept, which minimizes the impairment of scenic values is essential to accommodate potential growth. There is a recommendation in the plan that residential development adhere to the following general policies:

1. Cluster-concepts of design should be utilized for construction to reduce unnecessary visual impact upon the environment.

2. Future residential development should be limited to adhere to the expressed goal of keeping Highway 191 a two-lane facility.

3. Residential development should be located to avoid open meadows and keep away from riparian areas.

4. Development should closely adhere to the development planning and design guidelines suggested in the report.

Non-cluster developments should not be allowed to continue, especially along major highways. All development should be adequately screened from major roads and highways to protect the scenic visual qualities of the canyon. Any proposed development should adhere in its purpose and design to the comprehensive plan or to the various elements included, or to the area plan of the particular location in which proposed development is to be constructed. Higher density developments are to be considered as particularly suitable to areas where there is direct access or proximity to community facilities and circulation and/or commercial services. Lower density development should utilize areas where there are steep slopes, canyons or mountainous terrain and where there is restrictive accessibility to service facilities.

The report on the Gallatin planning area also contains comments regarding commercial areas, which suggested that the commercial development should be restricted to nodes along Highway 191 to prevent unslightly linear development of service areas on major roads. Basically, the same criteria proposed for residential cluster development will apply to commercial facilities. These are namely the architecture and layouts should be compatible with the natural environment, they should be screened from view wherever possible and not be located along the line of site to scenic areas. As much of the natural environment should be retained, leaving native ground cover for buffer zones around the commercial areas. A comprehensive plan for the area provides for a main commercial area just north of Beaver Creek development along the highway primarily at the intersection between the West Fork of the Gallatin River and the main river channel. Just south of Beaver Creek South subdivision is an area provided for recreation, commercial use, with dispersed activity.

The comprehensive plan presents a statement that the major limiting factor on future land development in Gallatin Canyon is the strongly expressed desire of the residents to restrict construction activities on Highway 191 to normal maintenance and minor improvements. This objective means that the highway will be kept a two-lane facility with a maximum carrying capacity of 4,500 vehicles per day as estimated by the Montana Highway Department.

The recommended improvements to the road should include roadside rest areas, turn lanes, pedestrian crossings, signed animal crossings, traffic signing and speed control. Site planning and architectural and landscape design of adjacent development should result in an attrative appearance from the highway and a harmonious relationship with the surrounding landscape.

Developments along the highway should give particular attention to the node concept of a site plan as expressed in the plan. Development should relate to such conditions as limiting access to the highway, clustered developments, setback requirements, screening, underground utilities, and appropriate appearance of advertising in relation to the environment.

Roadside rest areas and scenic viewpoints should be developed at relatively frequent intervals where local site conditions are compatible. In the development of scenic viewpoints, they should be so located as to not interfere with the view of the traveling public on the highway.

The county has not adopted the proposed comprehensive plan nor any other plan for the area, even though they do have authority to plan and zone.

In concluding their remarks to the draft environmental impact statement, the Montana Environmental Quality Council suggested attaching a map or scaled-down plat. A plat is included with this statement. The Environmental Quality Council also offered the following concluding comments:

> *We wish to compliment the Department of Health on its efforts to obtain pertinent information by consulting with appropriate agencies and individuals prior to circulation of the draft EIS. Thank you for your efforts toward compliance with the Montana Environmental Policy Act.*

Alternatives Available to Beaver Creek South, Inc.

There are two alternatives available to Beaver Creek South, Inc. One would be to proceed with development of the 95 acres as planned. This would involve all the afore-mentioned environmental impacts. The other alternative would be to develop 10+ acre tracts, thereby not requiring action by the Department of Health and Environmental Sciences.

If the 10+ acre tract concept was to become a reality, the environmental impacts would probably be drastically reduced at this site. Assuming single-family residences, there would be nine living units where 200 were ultimately planned. However, rental apartment units could be placed on a 10+ acre tract and not be subject to subdivision rules and regulations of the department.

Many would consider no development as a viable alternative but Beaver Creek South, Inc. would not. The 10+ acre concept would be implemented without further state governmental action.

Alternatives Available to this Department

1. Approve the subdivision plat as submitted. From the data submitted, the department gave serious consideration to this alternative. Adequate evidence that a water supply is available has been given. Approved solid waste facilities are available. The sewage treatment system is acceptable. The wastewater disposal system is an experimental method for the climatic and geographic setting of Gallatin Canyon. Therefore, a blanket approval would be premature.

2. Approve the initial phase of Beaver Creek South and base further action on operation of the wastewater disposal system. Exercise of this alternative can be justified in light of concept criteria required by MAC 16-2.14(10)-S14340, Section 69-5001 through 69-5005, R.C.M. 1947, and Section 69-4801 through 69-4827, R.C.M. 1947. The system would have to be monitored. If the evidence indicated there was forthcoming pollution of groundwater, the percolation ponds would be expanded. Five acres are available for this purpose. Dosing rates (average) could be reduced to approximately 0.075 gallons per square foot per day.

3. Refuse to approve the subdivision plat as submitted. Although there would be adverse environmental effects on wildlife and to many a degradation of the aesthetic quality of the area, no legislative mandate is in effect which would give legal justification for refusing to grant subdivision plat approval based on these grounds.

This statement was prepared by Art Clarkson, P.E., Public Health Engineer, B.S. and M.S., Civil Engineering; Donald Zollman, P.E., Public Health Engineer, B.S. and M.S., Civil Engineering; and Alfred P. Keppner, B.S.F., M.S., Soils Scientist, Water Quality Bureau, Environmental Sciences Division, with information furnished by Brelsford and Associates, Morrison-Maierle, Inc., Montana Department of Highways, Montana Department of Fish and Game, Gallatin County Superintendent of School, and others designated therein.

LEGEND

LAND USE ELEMENTS

▧ RESIDENTIAL

▩ COMMERCIAL

□ GENERAL FOREST

▒ RECREATION
  COMMERCIAL USE
  DISPERSED ACTIVITY

▤ RIPARIAN AREA

□ SPANISH PEAKS PRIMITIVE AREA

□ HIGH (ELEVATION AREA)

CIRCULATION ELEMENT

〰 HIGHWAY 191 AND MAIN ROADS

-·-·- FUTURE HIGHWAY CONNECTION
TO MADISON VALLEY

RECREATIONAL TRAILS

- – – – SNOWMOBILE TRAIL
- ········ HIKING / EQUESTRIAN TRAILS

Ⓐ REST AREAS, SCENIC OVERLOOK,
AND PICNIC AREAS

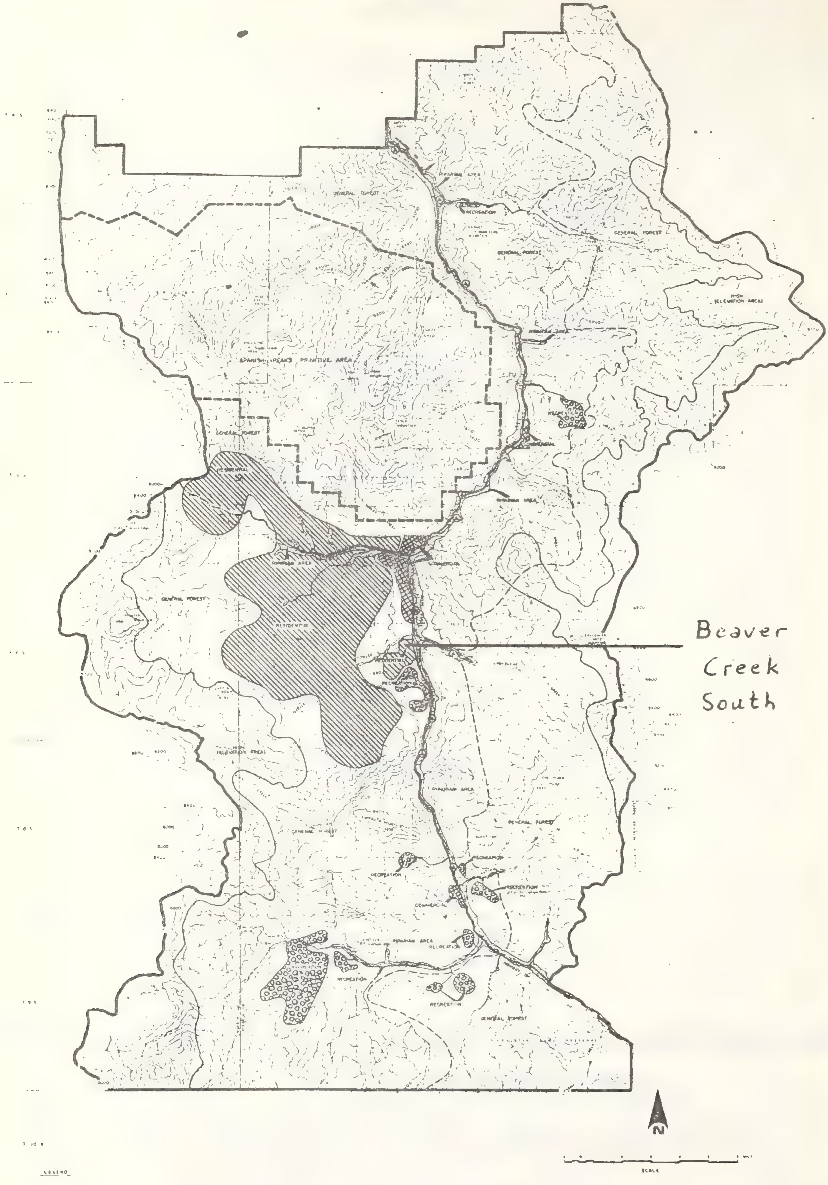
GALLATIN CANYON PLANNING STUDY

COMPREHENSIVE PLAN

PREPARED FOR

MONTANA STATE DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

THE MURRAY-McCORMICK
ENVIRONMENTAL GROUP
ECOSYSTEMS ANALYSIS · PLANNING · ARCHITECTURE · ENGINEERING


GENERAL FOREST
RIPARIAN AREA
RECREATION
GENERAL FOREST
GENERAL FOREST
HIGH ELEVATION AREA
RIPARIAN AREA
SPANISH PEAKS PRIMITIVE AREA
GENERAL FOREST
RECREATION
COMMERCIAL
RESIDENTIAL
RIPARIAN AREA
RIPARIAN AREA
COMMERCIAL
GENERAL FOREST
RESIDENTIAL
RESIDENTIAL
RECREATION
Beaver Creek South
HIGH ELEVATION AREA
RIPARIAN AREA
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RIPARIAN AREA
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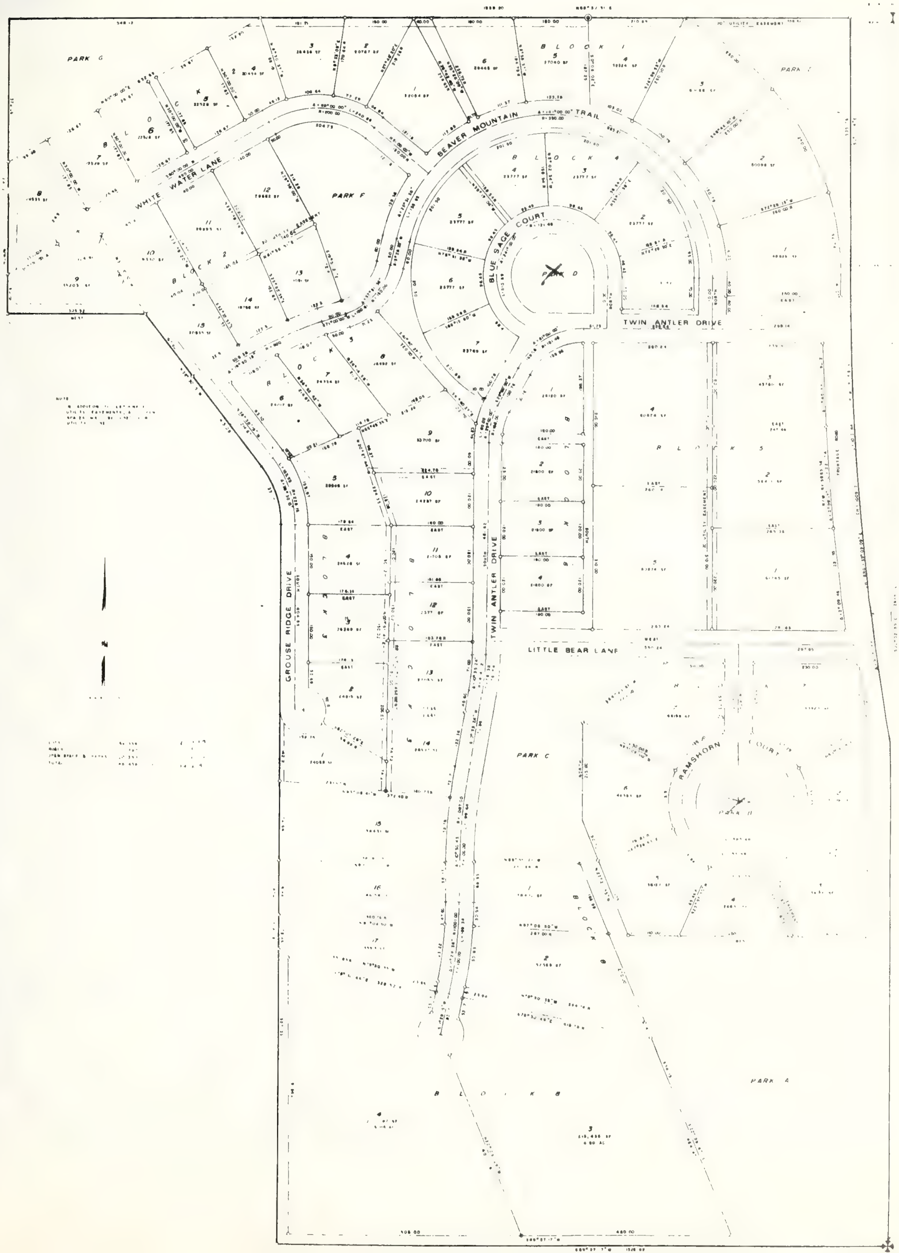
N
SCALE
LEGEND

BEAVER CREEK SOUTH

A PLANNED UNIT DEVELOPMENT

SEC. 17, T7S R4E MPM

PHASE 1



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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

MAY 6 1974

May 1, 1974

Re: Bridger Pines Subdivision

Honorable Thomas Judge, Governor of Montana, Helena
R. L. Allardyce, Allardyce Petroleum Company, 444 - 17th Street, Denver
Alice Fryslie, Multi-Business Service, Inc., 111 No. Seventh Avenue, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Department, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Gallatin County Sheriff, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
Thomas, Dean & Hoskins, Inc., 1200 - 25th Street South, Great Falls
Thomas, Dean & Hoskins, Inc., 1111 North Seventh Avenue, Bozeman
Department of Intergovernmental Relations, Division of Planning, Helena
Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
Department of Highways, Helena
Ronald Schleyer, Lee State Bureau, 317 Allen, Helena
Rick Graetz, Box 894, Helena
Perry Nelson, Gallatin Sportsmen's Association, 526 North Bozeman Avenue, Bozeman
Louis Moos, Sacajawea Audubon Society, 712 South le Avenue, Bozeman
Dr. Wayne Thompson, 1317 South Third, Bozeman
Duane Bowles, 809 South Third, Bozeman
Erwin Lachenmaier, 1310 South Third Avenue, Bozeman
Dr. Richard C. Ritter, Box 1170, Bozeman
Earl Best, Bridger Canyon Planning & Zoning Commission, Courthouse, Bozeman
James Posewitz, Department of Fish and Game, Helena
Gallatin National Forest, Supervisor, Federal Building, Bozeman
Lawrence Christy, Bridger Canyon, Bozeman
Gerald Wing, Bridger Canyon, Bozeman
David Levengood, Bridger Canyon, Bozeman
Don Brelsford, Bridger Canyon, Bozeman
Cliff Montagne, Bridger Canyon, Bozeman
Jim Goetz, Bridger Canyon, Bozeman
Ken Hapner, 1116 West Curtiss, Bozeman
Elizabeth Smith, 2311 Highland Court, Bozeman
Dave Stuart, Department of Microbiology, MSU, Bozeman
Dave Vaughn, 1611 Willow Way, Bozeman
Charles Bradley, 1105 South Tracy, Bozeman
Northern Rockies Action Group, #9 Placer Street, Helena
Morris Jaffe, 1311 South Black, Bozeman
John Duncan, 116 West Ridge Drive, Bozeman
C. F. Widmer, 414 South Ninth, Bozeman
Terry Abelin, 430 South Tracy, Bozeman
Dr. Bill Prunty, 1524 South Grand, Bozeman
Dr. John Fisher, 1603 South Willson, Bozeman
Don Reichmuth, Bridger Canyon, Bozeman

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930 East Lyndale Avenue
Helena, Montana 59601

Environmental Quality Council, Helena
J. H. Newhall, Bridger Canyon, Bozeman
Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Ray Hedrick, Sanitarian, Box 109, Livingston
Park County Commissioners, Courthouse, Livingston
Dorothy Bradley, Route 3, Box 114, Bozeman
Ron Aasheim, T.A.P., Inc., P. O. Box 1348, Bozeman
Glen Buss, 1312 South Black Avenue, Bozeman
John C. Geach, Sanitarian, Box 281, Glendive
Doris Milner, The Montana Wilderness Association, Route 1, Box 1410, Hamilton
Ed Mohler, The Gallatin County Tribune, 201 E. Mendenhall, Bozeman
David L. Noland, The Noland Agency, 1002 Pioneer Building, St. Paul, Minnesota
Livingston Public Library, Livingston
Bozeman Public Library, Bozeman
Park County Planning Department, Courthouse, Livingston
Garland Shaw, Pesticide Division, Department of Agriculture, Helena
Bob Shiplet, Clyde Park
Larry Uman, Environmental Studies Department, University of Montana, Missoula
Mrs. Fred J. Wirtz, 432 North 5th Street, Livingston
Mrs. Craig Zakovi, 514 North Montana. Bozeman

Ladies and Gentlemen:

In the process of preparing the final environmental impact statement for the Bridger Pines Subdivision, we inadvertently failed to mention that we had received a letter from Lawrence G. Christie, Chairman of the Bridger Canyon Property Owners Association, Inc., commenting upon the draft statement. The letter is attached.

Since publication of the final, we have heard concern from the property owners association that we did not directly respond to the letter. The final statement did deal with the issues raised in the letter, although not specifically.

It should be noted that this department does not necessarily subscribe to the stipulations suggested by the association, and at no time did we say we entirely agreed with them. They are as follows.

"1. That specific restrictions issued by the Department of Health and Environmental Services [sic] be attached to the Declaration of Deed." Our legal unit says there apparently is no such thing as a declaration of deed in Montana. We believe that the inclusion of the stipulations in the restrictive covenants is sufficient, and violation of these stipulations is grounds for reimposition of the sanitary restrictions.

"2. That the approval be limited to the 10 existing units." As noted in the final statement, this department will approve the units in numbers according to the adequacy of the water and sewage facilities.

"3. That hauling be granted on an interim basis with a conditional use permit with a time limit. If hauling proves unacceptable to the county or Bridger Canyon residents, then the permit may not be renewed upon its expiration." We are not sure what the "conditional use permit" is but this stipulation appears to be generally in line with our policy as discussed in the final statement.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

Lawrence G. Christie, Chairman
Bridger Canyon Property Owners Association, Inc.
Route 2, Bridger Canyon
Bozeman, Montana 59715

March 7, 1974

Daniel Vichorek, Technical Writer
Department of Health and Environmental Sciences
State of Montana
Helena, Montana 59601

Re: Draft on Environmental
Impact Statement on
Bridger Pines Subdivision

Dear Mr. Vichorek:

A special meeting of the Bridger Canyon Property Owners Association was held this evening with Don Zolman, Dept. of Health and Environmental Sciences, and Mrs. Alice Fryslie representing the Bridger Pines Subdivision. Following a thorough discussion of the subdivision, members present voted unanimously in favor of the temporary (5 year) hauling of sewage to the Belgrade, Montana lagoon system with the following stipulations:

1. That specific restrictions issued by the Dept. of Health and Environmental Services be attached to the Declaration of Deed.

2. That the approval be limited to the 10 existing units.

3. That hauling be granted on an interim basis with a conditional use permit with a time limit. If hauling proves unacceptable to the county or Bridger Canyon residents, then the permit may not be renewed upon its expiration.

The group asked that I particularly emphasize the need for a development plan for the ski hill and the base area before further development or change takes place.

I wish to thank Mr. Zolman for assisting in our meeting, particularly, under such short notice.

Very truly yours,

Lawrence G. Christie

Lawrence G. Christie, Chairman
Bridger Canyon Property Owners Association, Inc.

LGC/jhn (mrc)

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STATE DOCUMENTS
APR [illegible] 1974

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

April 15, 1974

Honorable Thomas Judge, Governor of Montana, Helena
R. L. Allardyce, Allardyce Petroleum Company, 444 - 17th Street, Denver
Alice Fryslie, Multi-Business Service, Inc., 111 No. Seventh Avenue, Bozeman
Board of County Commissioners, Courthouse, Bozeman
City-County Planning Department, Courthouse, Bozeman
City-County Health Department, Box 639, Bozeman
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Doris Milner, The Montana Wilderness Association, Route 1, Box 1410, Hamilton
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David L. Noland, The Noland Agency, 1002 Pioneer Building, St. Paul, Minnesota
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Bob Shiplet, Clyde Park
Larry Uman, Environmental Studies Department, University of Montana, Missoula
Mrs. Fred J. Wirtz, 432 North 5th Street, Livingston
Mrs. Craig Zakovi, 514 North Montana, Bozeman

Ladies and Gentlemen:

This final environmental impact statement has been prepared for your consideration, pursuant to the Montana Environmental Policy Act (MEPA).

As stipulated in the MEPA, no official action will be taken in regard to this development before May 15, 1974.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

DV:dg

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

April 15, 1974

SUMMARY OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR BRIDGER PINES SUBDIVISION

The first submission of data to this department regarding the Bridger Pines Subdivision was made August 6, 1971. At that time, it was proposed that individual septic tanks or an Armon system be used to dispose of sewage in the development.

These systems were rejected as unsatisfactory by this department.

Following this rejection, the area encompassing Bridger Pines, Bridger Bowl, and several other parcels of adjacent property was zoned for intensive use. At about the same time, the Bridger Bowl sewage system failed, underlining the problems to be faced if the area were developed to the extent allowed under the zoning ordinances.

In view of these problems, the department ruled that any temporary, interim sewage systems proposed for use in the intensive use area must be capable of reliably preventing contamination of ground or surface water while operating alone, and must be designed to function as a component of a central sewage system that would be expected eventually to serve the entire high density area.

In April of 1973, the developers of Bridger Pines submitted an engineering study describing several possible alternatives that could be used to serve the entire high density area around the Bridger Bowl. The recommended solution in the study consisted of collecting the wastewater generated in the area to a central location and truck transporting the collected wastewater to a remote location for treatment and disposal.

Subsequently, the engineers for the Bridger Pines development proposed a scaled-down version of the hauling scheme to serve the Bridger Pines development. The sewage would have been deposited in evaporation lagoons in Park County. On December 6, 1973, a draft environmental impact statement was circulated relative to this proposal.

In the exchange that followed among the developers, this department, and the public, the developer abandoned the idea of using evaporation lagoons in Park County and moved instead to contract with the town of Belgrade for use of their municipal sewage system to dispose of treated wastewater hauled from Bridger Pines.

This latter proposal is examined in this final impact statement. It appears that the proposal would meet all state standards for sewage disposal, without serious danger of contaminating the environment. Sewage would receive secondary treatment at the Bridger Pines site and would be disinfected before it was hauled. Hauling would be limited to summer months when road and traffic conditions are favorable. Emergency hauling would be authorized if determined to be necessary by the department.

During the summer haul season, the tank truck would make three or four trips per day, which should not pose a significant traffic hazard.

The use of electricity for heating would cause impacts away from the site where increased electrical demand would result in the construction and operation of coal-fired power plants.

FINAL ENVIRONMENTAL IMPACT STATEMENT

BRIDGER PINES SUBDIVISION
GALLATIN COUNTY

Pursuant to the Montana Environmental Policy Act and Montana's laws concerning public and private water supply and sewage disposal for subdivisions and water pollution control, the following final statement was prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences, which has been asked to remove the sanitary restriction from the above-cited property. Montana's laws governing water supply and sewage disposal for subdivisions require that sanitary restrictions be removed before construction on subdivided property of any building requiring facilities for water supply or the disposal of sewage, trash or garbage. This development is located in the southeast 1/4 of Section 19, Township 1 North, Range 7 East, northeast of the Bridger Bowl ski area in Bridger Canyon, Gallatin County, and is shown on Map 1.

History and Description of the Project

On August 6, 1971, this department received the first submission of material on this development from the engineering firm of Thomas, Dean and Hoskins. In the original proposal, the property owners, Allardyce Petroleum Company of Denver and Bridger Valley, Inc., represented by Mr. Christensen proposed to develop 30 lots on 30 acres of ground. The proposal provided 30 sites for individual dwellings and 30 additional condominium sites for a total of 60 units. Each individual lot owner would own a 10,000 square foot lot (100 feet by 100 feet) plus 1/30 of an open area set aside within the development. Under the plans submitted, 2.7 acres would be used for streets, 11.95 acres for open space, 6.89 acres for lots, and 8.46 acres for condominiums.

Thomas, Dean and Hoskins proposed wells with four to six users each as the water supply for the development. Septic tank drainfield systems or Armon systems were proposed for sewage treatment and disposal. No wells had been drilled on the property, but a log of a well on the adjacent Forsyth Ranch indicated that a well 95 feet deep producing 15 gallons per minute was serving the ranch facilities.

Information submitted by Thomas, Dean and Hoskins and obtained during on-site reviews by department personnel indicated several conditions existed in the Bridger Bowl area which would have adverse effects on successful operation of septic tank drainfield systems or Armon systems. Soils appeared to be completely saturated due to natural runoff during extended periods each year, soil systems appear shallow with near surface bedrock in evidence in many locations, a great deal of the terrain is too steep for such systems, and net evaporation appears to be

nil, making evaporation schemes unfeasible. A review of the above conditions led to the department to reject the septic tank drainfield and Armon system proposal and recommend that a central sewage collection, treatment and disposal system be considered.

During the initial phases of the development, the following two events were also taking place:

1. The Bridger Canyon Property Owners Association was developing planning and zoning for the Bridger Canyon, and,

2. The drainfield system serving the Bridger Bowl ski facilities failed.

The results of the planning and zoning efforts indicated that high density development in the Bridger Bowl area was probable and further information obtained by Morrison-Maierle, Inc., in an attempt to provide new sewage disposal facilities for Bridger Bowl, indicated that adequate sewage treatment and disposal in this area is a difficult proposition.

Because two significant opposing conditions appeared probable; that is, high density development in an area where existing conditions make adequate sewage treatment and disposal very difficult, if not impossible, and/or economically unfeasible, the department took a position that no sanitary restrictions would be removed from any proposed development in the Bridger Bowl area until a plan was available which provided possible solutions to the difficult sewage disposal problems in the area.

In response to the department's decision, an effort was made to form a rural improvement district in the Bridger area to finance an overall study of the sewage disposal problems in the high density area. To date, there has been no general agreement among the property owners in the Bridger Bowl area about the need for an RID; consequently, there has been no district formed. With the debate continuing on the rural improvement district, Bridger Pines co-owner, Robert Allardyce took it on himself to finance an engineering report on sewage treatment and disposal for the entire Bridger Bowl high density area. The report was prepared by Thomas, Dean and Hoskins, Inc., and was published in August 1973. The report considers several alternatives for sewage treatment and disposal to serve all present and future needs in the area zoned for high density use.

Briefly stated, several methods were evaluated for possible use in the long-term system that would eventually dispose of sewage from the entire high density area. The following is from the Thomas, Dean and Hoskins Report.

One method considered was the standard lagoon concept with total retention. This concept is not practicable for development within the Bridger Bowl area due to restrictions of land available, the steep slope characteristics of the area, and the extremely low evaporation rate.

Another method considered was that of aerated lagoons with winter retention of approximately 240 days. Ultimate disposal would be by spray irrigation. We checked the available land within the immediate area and found that the only possible land was U. S. Forest Service land or the ski lift area itself. Both areas are too steep and are too restrictive in size to allow plant growth during the short growing season. Pumping against such severe heads would be costly and unreliable.

The next solution considered was to utilize areas downstream from the ski area for a spray field and treatment facility. There are only two areas of suitable slopes, plant growth, and adequate size within the distance of approximately three miles. The availability of these areas was checked. The owner will not consider putting the facilities on his land because the best land use has not been established at this time and the facility could be detrimental to the effective development of his land.

Another method of disposal considered, with no discharge to the Bridger Creek, was the total hauling of sewage from the site. Raw sewage could be hauled or some degree of treatment could be provided prior to hauling. The method of hauling would be restricted to sealed tanks and the system would have to provide adequate storage capacity and adequate transport equipment to insure a condition of no discharge into the stream. In addition to hauling there would be a treatment facility at the disposal site, at some location other than Bridger which would have to meet the requirements of the State Department of Health and Environmental Sciences for that area. A system at a remote location could be constructed to provide no discharge.

Construction of a conventional, primary, secondary, and tertiary sewage treatment plant would not meet the effluent quality requirements, and, therefore, cannot be considered adequate. Any discharge to a surface stream must meet the requirements of the state's policy of non-degradation of high quality waters.

To provide an effluent of quality equal to the Bridger Creek would require in excess of a secondary treatment plus nutrient removal. Two basic concepts have been evaluated under this alternate. The first concept would be the use of a surge tank which would have the effect of leveling the weekend load to a more uniform average daily flow throughout the week. This surge tank would be followed by an extended aeration system, which would have the effect of nitrification of the ammonia as well as the normal considerations of BOD and suspended solids removal. The aeration plant would be followed by clarification, chemical precipitation for phosphate removal, and filtration for ultimate clarification of the contact basin effluent. Chlorination would follow the filtration where the coliform reduction requirements could be satisfied as well as additional nitrogen could be converted to chloramines. Following the chlorination, carbon columns would be utilized to remove the minute carry-over and BOD demand. This would also remove the chloramines. Following the carbon columns, a small tank would provide aeration to buff off chlorine and develop a suitable dissolved oxygen content in the effluent.

A second concept considered for nutrient removal again used a surge tank and extended aeration system to level the flows throughout the week. The extended aeration system would be followed by a membrane filtration unit. The membrane filtration unit would remove BOD in excess of 99 percent, remove all settleable solids and suspended solids, and thus reduce the total solids. The membrane unit would also reduce the total alkalinity of the sewage. Following the membrane unit would be ion exchange columns for removal of the phosphates and the nitrates, magnesium, sodium, and natural chlorites.

The Thomas, Dean and Hoskins report was quoted extensively in the draft statement, but this final statement will concern itself almost entirely with the temporary system that is proposed to serve Bridger Pines until a permanent system can be designed and installed to serve Bridger Pines and the rest of the development expected within the high density area.

Proposed Interim Sewage Treatment and Disposal Solution for Bridger Pines Subdivision

The on-site sewage treatment facilities would include a treatment cell and a holding cell. The treatment cell would have approximately a two-day retention time at average winter flow. After two days aeration treatment in the first cell, the sewage would move to the much larger holding cell. This cell would have a capacity of 1.9 million gallons, which would be adequate for seven months storage so hauling could be limited to summer months during favorable road and traffic conditions.

The sewage would be further aerated in the holding cell and disinfected before it was hauled to the final disposal site.

The storage capacity of the two cells was designed to conform with standard engineering assumptions used to calculate the amount of sewage that would be generated by developments such as this. The first assumption was that the initial stage of the development would consist of 20 condominiums and 10 single dwelling units, as now proposed by the developers.

For the condominiums, it was assumed each unit would have three residents with 75 percent occupancy during the five-month ski season and 50 percent occupancy the rest of the year. Per capita per day flow was predicted to be 80 gallons.

In the single dwelling units, 100 percent year around residency of three persons per unit was assumed, also at 80 gallons per capita per day.

The holding pond is large enough to hold the outfall of the total 30 units, plus the approximately two feet of precipitation during the seven-month storage period. Depending on the size of the tank truck finally settled upon by the developers, it probably would take three or four trips a day during the summer to dewater the holding pond, if the proposed 30 units are developed and sewage is generated in the amounts predicted above.

Both ponds would be lined with a plastic membrane to prevent wastewater percolation into the ground.

From Bridger Pines, the wastewater would be hauled to the municipal sewage treatment plant in Belgrade. The Belgrade system was designed for a maximum of 4,200 persons, and no more than 1,100 are now using it. There is thus plenty of capacity for the Bridger Pines Subdivision residents.

Domestic Water Supply

At present, one well with an estimated long-term yield of 10 gallons per minute is proposed to serve the initial stages of the development. Standard engineering assumptions indicate this amount of water would serve the ordinary domestic needs of 100 to 125 residents, or about 30 to 35 living units, if a 50,000 gallon storage tank were provided as planned by the Bridger Pines developers.

However, smaller pressure tanks would have to be used until the larger tank could be delivered and installed, probably some time in the summer of 1974 or spring of 1975, according to the developers. With only a limited water source available, the development will probably be severely restricted until the large storage tank is installed or additional wells provided. Essentially, no fire protection would be provided by the system.

The state has recommended on several occasions to the various land owners in the Bridger Bowl area that a master water plan be developed as well as a master sewage treatment and disposal plan. To date, the department has not been successful in persuading the land owners to make such a plan.

The operation and maintenance of facilities under the community water plan would be the responsiblity of a home owners' association. The association would be responsible for the water and sewer system from the outset.

Other Facilities and Services

Electric heating would be used in all living units in the subdivision.

A commercial trash hauler has contracted to remove solid waste from the subdivision to an approved landfill.

All utility lines would be underground.

The requirement that land within the subdivision be dedicated as public park was waived and the proposed dedication of 11.95 acres as open area within the subdivision was approved.

Restrictive covenants have been prepared to prevent unsightly development and facilities within the subdivision.

All cut and fill for road construction has been completed. Some condominiums have already been constructed in apparent violation of Section 69-5003, R.C.M. 1947 which states, *No building or shelter which necessitates supplying water or sewage or waste disposal facilities for persons shall be erected until the sanitary restriction has been removed or modified.* The county attorney was notified of the apparent violation; however, the county attorney's decision was to not take action until an attempt was made to occupy the condominiums.

Existing Environment

The Bridger Pines property is generally mountainous ranging in elevation from 6,020 feet to 6,200 feet. There are no continuously flowing streams on the property. The land is mostly covered with heavy timber.

Slopes in the subdivision range from 10 percent to nearly 30 percent.

Soils are glacial till with clay and shale of low permeability, accounting in part for the low rate of water production.

Environmental Impacts

The environmental impact of this development probably would be negligible. Since there would be no discharge into surface water, the water quality of Bridger Creek would be unimpaired. Comments from the Fish and Game Department did not indicate there would be a significant impact on wildlife.

The proposed removal of groundwater from the aquifer by Bridger Pines and its subsequent removal to another drainage as sewage should not have any noticeable effect on the volume or quality of Bridger Creek or on other groundwater users

in the area, according to a member of the State Water Rights Bureau. However, should ultimate development of the entire Bridge Bowl area be realized as suggested by the planners, this could create a significant impact.

Some sedimentation problems could arise if care were not taken to minimize ground disturbances during construction.

Some air pollution would result from the use of gravel roads in the summer and fireplaces in the winter.

The use of electric heat could generate several negative effects beyond the boundary of the subdivision. The Montana Power Company reports that each condominium would use six to eight kilowatts at peak and each house about ten kilowatts. The present transmission line to the area handles about 1,500 kilovolt amperes at peak and has a capacity of about 2,500 kilovolt amperes. The peak load of all 60 units at Bridger Pines would demand about 537 kilovolt amperes which does not exceed the capacity of the existing line. Elsewhere, however, such additional demands for power could result in increasing the need for construction of coal-burning power plants, resulting in additional use of water and land and degradation of air quality. Since the developer expects these units to be used as second homes, they will increase the energy use of buyers who maintain two homes.

If the residents of the subdivision are temporary on a seasonal basis as the developer expects, there should be no impact on schools in the area.

The county commissioners did not respond to the impact statement, but they indicated elsewhere that the hauling of sewage from Bridger Pines should not have any harmful effects on the county roads or traffic on the roads. The Highway Department also had no negative comments on the proposal.

The lack of fire protection caused in part by the small supply of water is a serious concern that the developer and potential land buyers should keep in mind. This department has no authority to require fire control facilities.

Short-term/Long-term Comparisons

The increasing demand placed upon material and energy sources by second home developments seems out of line with the emerging national ethic of conserving energy and materials. If mandatory constraints are placed on the use of resources, second homes should have the lowest priority.

Irreversible Commitment of Resources

Energy and materials used to satisfy the needs of this development obviously cannot be used elsewhere. There would be an increase in congestion and a decrease in open space in the area around the subdivision. The use of electrical heat would lead to the irreversible consumption of coal in eastern Montana generating plants.

Alternatives Available to this Department

This impact statement deals with the impacts that would be directly generated by Bridger Pines, although it is realized that construction of this development might encourage further development in the vicinity. The developers of the subdivision have asked this department to remove the sanitary restrictions from the 60 units proposed for the development, and to thus, in effect, approve the proposed water and sewer systems and solid waste disposal plan.

This department could take any of the following actions:

1. Approve the development as requested.
2. Approve the development with stipulations as necessary.
3. Disapprove the development for just cause.

After reviewing all available data on the development and taking note of the response to the draft impact statement, the department has decided to approve the development based on the capacity of the water and wastewater handling facilities and subject to a number of stipulations as follows:

1. Effluent to be hauled must be disinfected and treated to near secondary quality at the Bridger Pines site. The system as planned would provide treatment to this degree.
2. Hauling would be allowed only during the approximately five-month period when the roads were in suitable condition for such hauling (June 1 - November 1).
3. The covenants must clearly inform land and condominium buyers that they have only a temporary solution for their sewage disposal problem and that they would be required to participate in and not object to formation of a sewer district when needed in the future. Restrictions will not be removed from any portion of this development until such information is included in the covenants.
4. Sanitary restrictions will be removed in increments as expansion and/or improvements in the water and sewage systems make further housing expansion possible without violation of state standards. During the initial stage when pressure tanks are to be used in lieu of the 50,000 gallon storage tank, development will be limited based on the capacity of the pressure tanks provided. After installation of the 50,000 gallon tank, the water system should be adequate to support 20 condominiums and 10 single family units. The sewage system will also be designed to accommodate the same number of units. If the developers want to further expand the development to include the 60 units originally proposed, the water and sewage systems must be expanded sufficiently to provide adequate service as required by state standards.

Public Response to the Draft Statement

More than 50 letters and over 350 signatures on petitions were received in response to the draft statement. Many of these objected to the original proposal to dispose of sewage in lagoons in Park County. We have attempted in this statement to deal with all comments received relative to the development as it now is proposed. We have not dealt with comments that were concerned with aspects of the development now abandoned from further consideration.

Many respondents urged the department that it should take action to prohibit further development in the Bridger Canyon. Such action is not within the authority of the department. Whenever the public decides it wants to limit growth, the legislature presumably will be advised, and take appropriate action. In the meantime, this department will continue to strive for compliance with the regulations for which it is responsible. Enforcement can be carried out by reimposition of sanitary restrictions if the conditions of restriction removal are not met.

There was considerable concern about the apparent violation of the law through the construction of ten condominium units before restrictions were removed. Counsel for this department said that the units were installed before either he or the county attorney was notified. When he was notified, the county attorney announced he would take no action unless the developers attempted to occupy the units before removal of the restrictions. Department counsel said such action was adequate inasmuch as the damage had already been done by the construction of the condominiums. Elsewhere, injunctions have been used with good effect, both before and after the Bridger Pines construction so the department can still take effective action to halt illegal building where necessary.

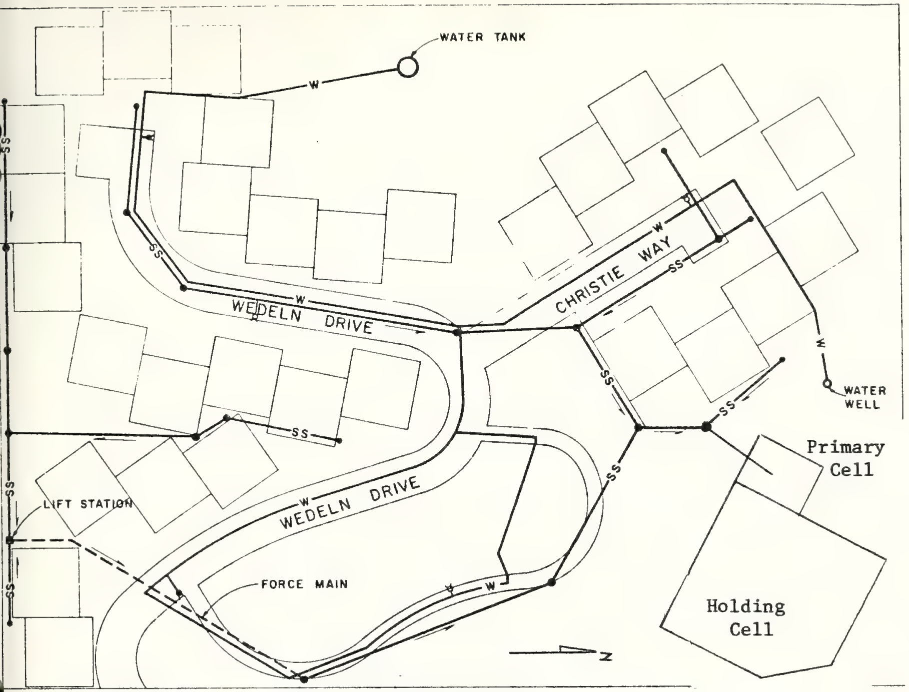
Several respondents were concerned that social costs would result from the development and that the public would be required to pay these.

Responses from officials and members of the public in the area did not anticipate any social costs, although these might be difficult to predict accurately.

One respondent said the development might require the department to begin addressing the complex sources section of the Clean Air Act. Don Holtz, chief of the Air Quality Bureau, said his bureau was in the process of addressing the complex sources section, but noted that the expected volume of traffic at Bridger Pines was far short of that which would require action under the section.

On February 22, we issued a supplement to the draft statement in response to public complaints that the draft inadequately explained the water and sewage systems.

Responses from government agencies are attached as Appendix A, along with a representative cross section of comments from the public. Other comments are summarized in Appendix B.



LOCATION MAP 1

Not to scale

INDEX

DESCRIPTION	SHEET NO.
LOCATION MAP, INDEX, LEGEND & MECHANICAL DETAILS	1
SANITARY SEWER PLANS	2 – 5
WATER MAIN PLANS	6 – 8
SEWAGE LIFT STATION	9

LEGEND

PROPOSED SANITARY SEWER	—SS—
PROPOSED WATER	—W—
NEW MANHOLE	○
NEW GATE VALVE	⋈
NEW FIRE HYDRANT	⊸
PROPERTY LINE	———
CENTER LINE OF STREET	— — —

THIS DRAWING HAS BEEN REDUCED
TO ONE-HALF ITS ORIGINAL SCALE

6" Couplin

REVISIONS	
DATE	DESCR.
DATE	DESCR.
DATE	DESCR.

DATE Sept 1972
SCALE As Noted
DRAWN J.H.A.
DESIGNED L.D.H.&J.H.A
APPROVED
JOB NO. 27-71
F. B. NO.
FILE NO.

THOMAS.
ENGINEERING CONSULTANT

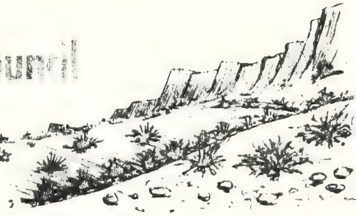
APPENDIX A

STATE OF MONTANA

Environmental Quality Council

FLETCHER NEWBY
EXECUTIVE DIRECTOR

CAPITOL STATION, HELENA, MT. 59601



GOV. THOMAS L. JUDGE
[illegible]
[illegible]

SENATE MEMBERS
SEN. ELMER FLYNN, CHAIRMAN
SEN. GEORGE DARROW
SEN. GEORGE McCALLUM
SEN. GORDON McGOWAN

HOUSE MEMBERS
REP. A. L. AINSWORTH
REP. DOROTHY BRADLEY
REP. LARRY FASBENDER
REP. THOMAS O. HAGER

MR. THOMAS J. LYNAUGH

January 18, 1974

RECEIVED
JAN 2[illegible] 1974
ENVIRONMENTAL SCIENCES
DIVISION

Mr. Daniel Vichorek
Technical Writer
Environmental Sciences Division
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Dan:

The following comments are those of the EQC staff regarding your department's draft environmental impact statement for the proposed Bridger Pines Subdivision in Gallatin County.

Paragraphs 3 and 4 on page 20 of the draft statement read as follows:

> As both water supply and sewage treatment and disposal present unusually difficult problems in this area, the department intends to remove sanitary restrictions only as specific water sources and sewage treatment facilities are provided. Strict limitations will be imposed on the number of units that can utilize any specific facility.
>
> The department will also exercise all powers available to insure that as development proceeds in the Bridger Bowl area, one central sewage collection, treatment and disposal system will be developed and that available sources will not be overused.

However, the significance of sanitary restrictions with respect to the goals of paragraph 3, and the "powers" referred to in paragraph 4 seem subject to serious questioning at this time.

The last paragraph on page 17 of the statement reads in part, "some condominiums have already been constructed in apparent violation of Section 69-5003, R.C.M. 1947...The county attorney was notified of the apparent violation; however, the county attorney's decision was to not take action until an attempt was made to occupy the condominiums." It is not difficult to envision the situation that will ensue if the condominiums are occupied and the county attorney chooses to act.

A county sanitarian once stated that to mention sanitary restrictions to a new property owner precipitated either a blank look or an invitation to make use of the toilet and that it took about an hour to explain the problem to many of them. After the lot, sanitary restriction and all, has been sold, who is responsible? The developer may have reduced his own culpability by including the restriction in the deed, and the buyer may have made too large a financial commitment to back out. In considering such cases decision makers and even courts have been known to be influenced when a party to an action has large sums invested or a hardship may be caused.

In light of the above, violations of the laws pertaining to sanitary restrictions should be enforced as soon after they are identified as practicable. If a county attorney delays action then the Department of Health and Environmental Sciences should seek a remedy to motivate that county attorney. The Bridger Canyon area would seem to be of sufficient significance to require that the department seek such a remedy.

If developers can demonstrate that Section 69-5003 of the Codes of Montana is not effective in an area like Bridger Canyon then there is no way the department will be able to carry out its mandate to protect the quality and potability of water for domestic and other beneficial uses and protect the public from the hazards of inadequate sewage and solid waste disposal facilities, let alone satisfy the mandate of M.E.P.A.

To follow the logic of this argument one step further, it seems highly undesirable that county commissioners zone an area for a use without first considering at least the regulations of the DHES. Engineering consultants are quoted in the draft statement (pages 16-17) as being of the opinion that developer's money has been spent on plans that cannot be implemented due to the physical characteristics of the area. Consideration of the need for water supply and sewage and solid waste disposal before a zoning change may save the commissioners and/or the DHES the expense and aggravation of a suite claiming a taking without just compensation when someone who bought property with the expectation of intensive development (justified by the zoning) is refused a permit.

In addition, we have these more specific comments:

1. We notice that no consideration is given to the complex source section of the Clean Air Act. It seems that the ultimate development of the Bridger Bowl area would be of such consequence that Department of Health authorities

may need to begin addressing that section of the law.

2. On page 14, Thomas, Dean and Hoskins are quoted as suggesting that an EPA grant be secured for sewer construction. We wish to suggest to the county commissioners that such a proposal would be competing with existing cities and towns for EPA's limited funds and that in the minds of some (EPA?) a second home recreational development would rank low on the list of priorities.

3. In this day and age of energy conservation the self-imposed sacrifices by many to curb our energy binge could be negated in short order by fueling trucks to haul sewage from this second home development. The question becomes one of what constitutes a more practical and productive use of our precious fossil fuels - a question the Department of Health would be wise to address.

4. The Rocky Mountain Center on Environment (ROMCOE) offers the following definition of carrying capacity: "No species can consume more than its environment can produce on a sustained basis, nor can it exist in an environment which has been loaded with toxins." In light of the failure of the Bridger Bowl sewage system and the need to haul sewage from the proposed subdivision to a point outside Bridger Canyon it would appear that the area has already reached its carrying capacity and that any effort to enable more people to live or recreate within the canyon must be made at the expense of productivity and energy derived outside the Bridger area.

We hope these comments will be helpful in formulating your agency's decision regarding the proposed development. Thank you for your efforts toward compliance with the Montana Environmental Policy Act.

Sincerely,

Loren

Loren L. Bahls, Ph.D.
Staff Ecologist

LLB/cm
cc: Dr. John S. Anderson
Mr. Ben Wake

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

RECEIVED
[illegible] 1973
ENVIRONMENTAL SCIENCES
DIVISION

December 17, 1973

Bridger Pines
Subdivision

Environmental Sciences Division
Department of Health & Environmental Sciences
State of Montana
Helena, Montana 59601

Gentlemen:

Reference is made to your letter of December 6, 1973 and the attached Environmental Impact Statement for the Bridge Pines Subdivision.

The statement proposes to utilize truck transportation of sewage as an interim and possibly ultimate method of disposal. In this regard, the hauling units will be required to observe legal load limits on the public roads on which they operate. The roads in this vicinity are under county jurisdiction and the County Commissioners will impose any required load limits.

Thank you for the opportunity to review this statement.

Very truly yours,

H. J. ANDERSON
DIRECTOR OF HIGHWAYS

By
Stephen C. Kologi, P. E.,
Supervisor - Preconstruction Section

32-SCK:KFS:mg

cc: D. S. Johnson
K. F. Skoog
D. A. Williams

STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME

Helena, Montana 59601
January 4, 1974

Mr. Dan Vichorek
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Dan:

As requested in your memo of December 24, our regional office has reviewed the environmental impact statement for the Bridger Pines subdivision. Following that review the attached material was prepared.

We hope it will be of use and that you will give it all the consideration you can. Once again, we thank you for the opportunity to review and comment on these projects.

Sincerely,

James A. Posewitz, Administrator
Environment and Information Division

JAP/sd
Enc

cc: Fletcher Newby
Don Bianchi

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

JAN 4 1974
ENVIRON. RESOURCES

Office Memorandum

TO : Wesley R. Woodgerd Attn: Jim Posewitz **DATE**: January 3, 1974

FROM : LeRoy Ellig By : Don Bianchi

SUBJECT: Environmental Impact Statement for the Bridger Pines Subdivision

Enclosed please find comments on this subdivision proposal prepared by Fisheries Biologist Dennis Workman. I concur with his comments.

I would like to further stress the possibility of the water pollution potential of this development and would consider it a total lack of responsibility by the Department of Health & Environmental Science if they remove the sanitary restrictions.

I also feel that if an area is such that it cannot totally support people (adequate water, sewage treatment, etc.) that the area should not be built on.

There would also be some loss of wildlife habitat from this proposed development but it would be relatively minor.

DB:plj

Enclosure

BRIDGER PINES SUBDIVISION

1. The planned 60 living unit development will violate section 8.3 of the Bridger Canyon zoning ordinances if constructed as described in the Environmental Impact Statement. Why have such ordinances, if they are just going to be waived upon request?

   Land Use

   Intensity

   0.5 acres/living unit

   Open Space

Minimum	Proposed
75% x 30 acres =22.5 acres requirement waived	11.95 acres open space (39.8%)

   Building Space Ratio

Maximum Covered by Buildings	
12% x 30 = 3.6 acres	15.35 acres (51.1%)

   Breakdown

   6.89 acres for 30 individual living units
   6.89 = 45% of 3.6 acres = 1.62 acres for 30 houses = a maximum of 2,352 sq ft for each house plus outbuildings. This is about the amount of space each owner could legally cover with buildings.

   More details are needed for breakdown of condominiums.

2. Bridger Bowl is located conveniently close to Bozeman, Livingston and several smaller towns in the surrounding area. The Bridger Pines Subdivision is not essential for the economic vigor of the ski facility. It suplicates temporary and permanent housing which is provided by the surrounding towns. The subdivision requires irreversible commitment of land which is needed for open space recreation by expanding populations.

3. If the subdivision gets the go-ahead, it will be going ahead based on guesses about sewage disposal and the adequacy of water supply in the future. Based on the failure of the sewage disposal facility at Bridger Bowl and the fact that the proposed new system is untried, the subdivision could turn into a nightmare of problems for unsuspecting land and condominium purchasers. And, the gamble would be minimal for Allerdyce. It boils down to high-risk, non-essential development for the short-term economic gain of a corporation. Considering risks and commitments involved, it should not be given the go-ahead.

4. With shortages in everything from oil and food to toilet paper, non-essential new developments should not be allowed. The consumption of 96 gallons of diesel fuel daily for hauling sewage from such a development should be prohibited; it is contrary to national interest.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Region 1, Missoula, Mt. 59801

DEC 28 1973

Mr. Daniel Vichorek, Technical Writer
Environmental Sciences Division
Depart of Health & Environmental Sciences
State Of Montana
Helena, Montana 59601

Dear Mr. Vichorek:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Bridger Pines Subdivision.

First, we have a few specific questions or comments on the text.

Page 2, last paragraph - The figure of 80 gallons per day per residence is used. Elsewhere 80 gallons per day per person is used. I am sure your intent was to use the 80 gallons per day per person.

Page 9 - Your tabulation lists 40 acres of land necessary for disposal by hauling. On page 13, item #3 states 160 acres of evaporation pond is needed.

Page 12 - Does your cost estimate for disposal by hauling include equipment ownership, snowplowing, and road maintenance? It appears the proposed route traverses three or four miles of non-county or State maintained road.

Are your power costs for the alternatives accurate? Referring to page 18, and using the stated power needs, a power rate of 9.6¢/kwh has been used for the membrane-ion exchange system. The cost would probably be more like 2¢/kwh. This would lower the total operating monthly cost to $4,780 or lower the total annual cost by $24,720.

Thus, the operating cost of the proposed haulage system appears to be more than the other two systems.

Page 13 - Can the proposed road system handle the types of trucks and proposed loads? Have the road reconstruction costs been considered?

Page 15, first paragraph - Due to the possible liquid level fluctuations in the lagoon, will bentonite provide a positive seal during the drying and rewetting periods?

Pages 16 - 17 - The question of an adequate supply of water has been raised. We feel these questions need to be answered in more detail.

Page 17, sixth paragraph - Where will the solid waste from the proposed subdivision be deposited? Have prior arrangements been made with an existing sanitary landfill?

Page 19, third paragraph - We feel some residents will be permanent.

In summary, the developer has attempted to evaluate systems which can serve the high density area without the benefit of all input by all the property owners. This is a commendable approach. We hope that the total needs at the Bridger Bowl complex are considered in approving any interim or partial system.

Hauling sewage to a remote lagoon appears to be one viable alternative. Because of the cost questions previously raised, we are not sure it is the most economical system in the long run.

Sincerely,

Steve Yurich
Regional Forester

State of Montana
COUNTY OF GALLATIN
◆
Bozeman
Office of County Surveyor

RECEIVED

Mr. Daniel Vichorek
Technical Writer
Environmental Sciences Division
Department of Health
Helena, Montana 59601

Dear Mr. Vichorek:

Please accept these comments directed to the draft Environmental Impact Statement for the Bridger Pines Developement, which is a part of the Bridger Bowl Ski Complex situated within the Bridger Canyon Zoning District.

As chairman of the Bridger Conyon Zoning Commission, I am vitally interested in the overall developement of the Bridger Bowl Ski Complex, therefore my comments, in the most part shall be directed to a Master Plan for the area.

In my opinion a complete Master Plan for the entire developement must be adopted before approval for any part of any phase be given by your Department, the Bridger Canyon Zoning Commission, The City County Planning Board, or the Board of County Commissioners and such approval shall conform to the direction of the Master Plan.

The Master Plan should in all areas possible have the input of experts well qualified in their profession. this would enable the Master Plan to give direction to the agencies having responsibility of approval. All phases of the developement should be dependent on each other phase. The ski population of the hill should not overload the bridger canyon road beyond its capicity of two lane travel, the sewer capacity is dependant upon the water supply.

If the mountain would support 6,000 skiers per day, but the water su supply is depleted because of sewage desposal, then the water supply should control. It is essential that the ski population be controled by the capacity of present highway emprovement at peek periods.

I am not against hauling the effulent if this is the least contaminating and the best and efficient way of desposal. I am against using tax money for road improvements on raods used for trucking desposal wastes on roads that now meet the demands of present traffic.

I think that second home developement should be discouraged. This way of developement would have considerable empact on the energy crisis and the road capacity. Busing should be encouraged to eliminate overnite accomindations and releave the impact on the sewer and water Master Plan. This would have an upgrading impact on the Bozeman economy where water is not a problem and sewage desposal is not severe.

To sumerize, one must realize that the governing body, the Board of County Commissioners, are not experts in all fields. They must rely on the scientific know how of the experts from which to base their approval.

If this expertise is made available we will have a recreational area that future generations can enjoy with pride, if not, the Bridger Bowl may become a second home developement, or a waste area where the environmental beauty and the recreational enjoyment will be lost for ever.

Earl R. Best

Earl R. Best
Gallatin County Surveyor
Chairman, Bridger Canyon
Zoning Commission

OZEMAN
ity County
lanning board

Gallatin County Courthouse, Room 103, Bozeman, Montana 59715 Phone: (406) 587-1752

RECEIVED

ENVIRONMENTAL SCIENCES
DIVISION

January 2, 1974

Mr. Daniel Vichorek
Technical Writer
Environmental Sciences Division
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Mr. Vichorek:

My staff has reviewed the environmental impact statement on the Bridger Pines Development in the Bridger Bowl area and I would like to pass on our comments concerning the statement and our position concerning the development.

In October 1971, Gallatin County Commissioners adopted both a master plan and a zoning ordinance for Bridger Canyon. Within the plan there is pinpointed a need for housing accommodations for visitors at the Bridger Bowl area. The purpose of supplying these accommodations is to alleviate traffic congestion on the Bridger Bowl Road and to allow people the opportunity to remain in the Bowl area if their purpose for visiting our area is to ski.

The Bridger Pines Development was approved by the County Commissioners before any zoning went into affect. However, we were in the process of reviewing and adopting a zoning code and persuaded Mr. Allardyce to comply to a proposed regulation. The subdivision, of course, was recorded before the adoption of the ordinance. We had no further dealings with Mr. Allardyce until June of 1973, at which time, his representative Ozzie Berg, applied for a building permit to place condominiums upon the property. At that time, we recieved an opinion from the County Attorney that it was our responsibility to issue a building permit where all of the conditions of the zoning ordinance were met. In our opinion, Mr. Allardyce did meet the regulations of the Bridger Canyon Zoning Ordinance and we therefore issued a building permit for the condominium units. At the time of issuing the building permit, we were concerned about sewage and water for the development as well as for the entire Bridger Bowl area. However, we were informed that a number of plans had been submitted to your department and a solution would be forthcoming.

We were unaware at the time what the proposal was and had no assurance that it would be approved. We did feel that if the sewer system was not approved by your department, the condominiums would not be developed and that Mr. Allardyce would let the building permit expire.

In reflecting upon the present proposal to truck sewage from Bridger Bowl, we feel, expecially after conversing with Mr. Zollman, that this is a logical method and perhaps the only method that can be approved by your department. However, after looking at the area of the proposed site for disposal, I would suggest that this site be ignored because of it's remoteness and that the developers be encouraged to find a site that is more convenient and perhaps closer to the Bridger Bowl area.

In summary, it is our opinion that development should occur in the Bridger Bowl area. We feel we have a plan and a zoning ordinance that will attract quality development in the Bridger Bowl area. We also feel that it is the responsibility of your department to insure an adequate sewage disposal system and trust that you will accomplish the same.

It is our opinion that trucking of sewage from the Bridger Bowl area is a logical expedient method of disposing of the sewage. However, we do feel that a better site than the one proposed could be found. We would suggest a site in Bridger Canyon would be most desireable or a site in the Gallatin Valley near Bozeman would be more desirable than the one proposed.

We appreciate you indulgence in this matter.

Sincerely,

Rick Mayfield

RICK MAYFIELD
Planning Director

RM/ym

CITY OF LIVINGSTON

LIVINGSTON, MONTANA

FROM OFFICE OF

Mayor

Dec. 18, 1973

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197

ENVIRONMENTAL SCIENCES
DIVISION

Mr. Dan Vichorek
State Dept. of Health
Cogswell Building
Helena, Montana 59601

Dear Mr. Vichorek:

At the adjourned meeting of the City Council, held on Monday, Dec. 17th the matter of development in Gallatin County wishing to dump sewage in Park County was discussed.

This is to advise you that the majority of the City Council wished to go on record as being opposed to the dumping of sewage into the Park County drainage area and would you please consider this to be an expression of protest.

Yours very truly,

Edmond Carrell Jr.

Edmond Carrell Jr. Mayor

EC:a

City-County Health Office
Park, Meagher and Sweet Grass Counties
P. O. BOX 109 PHONE 222-1407
LIVINGSTON, MONTANA 59047

RAYMOND R. HEDRICK
DIRECTOR OF
ENVIRONMENTAL HEALTH

RECEIVED
DEC [illegible] 1973
ENVIRONMENTAL SCIENCES
DIVISION

December 27, 1973

Mr. Daniel Vichorek
State Department of Health
Cogswell Building
Helena, MT 59601

Dear Mr. Vichorek:

The Park-Livingston, City-County Health Department feels there is a better way for Bridger Pines subdivision to treat and remove its sewage than by hauling it away. Hauling sewage in such large amounts, creates many problems as well as health problems for residents in the area, as well as to the area where sewage is to be disposed.

The present proposed site is not in a remote area and it has poor evaporation, etc. Therefore, this office opposes the proposed sewage dumping plans.

Sincerely yours,

Ray Hedrick
Ray Hedrick, R.S.
City-County Sanitarian

RH/bj

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DEC 2 1973

ENVIRONMENTAL SCIENCES
DIVISION

Office of
County Commissioners of Park County
Livingston, Montana 59047

December 27, 1973

Mr. Daniel Vichorek
State Department of Health
Cogswell Building
Helena, MT 59601

Re: Bridger Pines subdivision;
hauling sewage

Dear Mr. Vichorek:

We, the Park County Commissioners, oppose to any subidivision hauling sewage in large amounts to a disposal site. It is our duty to protect Park County residents and their welfare, health, and safety. Surely, the sewage from Bridger Pines subdivision can be treated satisfactory at the subdivision site with today's technology.

Therefore, we oppose to hauling sewage into Park County drainage area from subdivision and developed areas.

Sincerely,

Homer Terwilliger

Homer Terwilliger, Chairman
Board Member

John Gilbert

John Gilbert
Board Member

Don Blakeslee

Don Blakeslee
Board Member

City-County Health Office
Park, Meagher and Sweet Grass Counties
P. O. BOX 109 PHONE 222-1407
LIVINGSTON, MONTANA 59047

RAYMOND R. HEDRICK
DIRECTOR OF
ENVIRONMENTAL HEALTH

December 27, 1973

From the Board
of Health Office

Mr. Daniel Vichorek
State Department of Health
Cogswell Building
Helena, MT 59601

Dear Mr. Vichorek:

In a meeting held on Thursday evening, December 20, 1973, the Park County Board of Health voted unanimously to reject the proposal by the Bridger Pines subdivision in Gallatin County to transport effluent from their aereated lagoon to evaporation ponds to be constructed in Park County.

The grounds upon which this rejection is based are many and varied, but some of the most obvious, are as follows:

1. inadequate roads in the haul route
2. net evaporation rates, in the proposed sites, of zero or less
3. potential hazards to health and environment in the event of rupture of either a tank truck or evaporation pond.
4. the development is proceeding illegally because of sanitary restrictions remaining on the property.

The Board is adamant in its refusal to condone any such scheme which involves the hauling or transporting of sewage into Park County or its drainages or the deposition of such sewage in any manner which could potentially contaminate any surface or subsurface water within the County.

Sincerely,

T R Clemons
Dr. T. Clemons
Health Officer

Richard Petersen, Chairman
Board Member

T L Kitts O D
Dr. T.L. Kitts
Board Member

Martin A. Bates
Martin Bates
Board Member

James Griffith
James Griffith
Board Member

Robert Shenkle
Robert Shenkle
Board Member

Livingston City-County Planning Board

Livingston, Montana
59047

CHAIRMAN

SECRETARY

December 20, 1973

[illegible] 1973
[illegible]

Mr. Daniel Vichorek
Technical Writer
Environmental Sciences Division
Department of Health and Environmental
  Sciences
State of Montana
Helena, Montana 59601

Re: Draft Environmental Impact
Statement, Bridger Pines
Subdivision, Gallatin County

Dear Mr. Vichorek:

At a meeting of the Livingston City-County Planning Board held this date, the Board adopted unanimously the following resolution:

RESOLUTION

The City-County Planning Board opposes the alternate plan of hauling by truck the sewage of the Bridger Pines Subdivision in a south and east direction to a proposed open lagoon for the following reasons:

1. If it is absolutely necessary to haul sewage from the proposed development, it would be more practical and beneficial to haul the sewage to the Bozeman sewage system for treatment and not dispose of it through an open lagoon.

2. The proposed plan would be detrimental to the welfare, health and safety of the residents in the area.

3. The proposed plan is not in the "remote" area as described in the plan as there are three subdivisions in the area being developed. Also, it is an area of potential development for recreation.

4. The proposal would affect the ascetic value of the area and would disturb the natural environment.

5. The proposal will result in obnoxious odors particularly in the summer months.

6. Said proposal would result in the trucking of sewage over hazard mountain roads leading to the liklihood of an accident causing pollution.

7. Such a plan could result in the pollution of sewage into the drainage system.

We therefore urge you to reject the plan to dispose of the sewage of the Bridger Pine Subdivision by truck to an open lagoon as proposed in the environmental impact statement.

Yours sincerely,

Dan Yardley

Dan Yardley, Chairman

DY/nm

DR. RICHARD C. RITTER
DENTIST
BOZEMAN MEDICAL ARTS CENTER
300 NORTH WILLSON PHONE 587-7939
BOZEMAN, MONTANA 59715

ENVIRONMENTAL SCIENCES DIVISION

January 4, 1973

Daniel Vichorek
Technical writer
Environmental Science Division
Department Health & Environmental Science
Helena, Montana 59601

Dear Mr. Vichorek:

I am hereby objecting to the Environmental Impact Statement for Bridger pines subdivision. I think it is the most poorly developed statements I have read.

1. your mailing list, besides going to many people of questionable interest, did not include the land owners in the area.
2. you have taken the aug 1973 thomas, Dean & Hoskins Inc Engineering report as your bible in formulating your report. I see no original input from the Department nor any of the good material that Morris & Mercilie have developed
3. If Bridger pines Subdivision wishes to develop a plan to haul sewage by trucks (or treated effluent) then the plan should be developed for Bridger pines — not the whole area
4. I do not believe the maximum density of the area will occur for 15-20 years, if then. At this point in time there are not bodies to amortize a R.I.D. or Central treatment facility. An AERATED Lagoon system that works for Big Sky will work for Bridger for many years. At that time that more is needed there will be bodies to do it
5. Hauling sewage is a poor answer to a development that some Day may exist at Bridger Bowl!

Richard C. Ritter DDS
Member,
State Board of Health

1310 South Third Ave.
Bozeman, Montana 59715
January 7, 1974

Dr. John S. Anderson, Director
Dept. of Health and Environmental Sciences
Helena, Montana 59601

Re: Bridger Pines Sub.
Gallatin County

Dear Dr. Anderson:

After studying in detail the impact statement on the above named subdivision we wish to voice our approval to the granting of an interim permit for the proposed sewage disposal system.

Since the Bridger Bowl Area will certainly need a central sewage disposal system in the not too distant future the plan submitted in the impact statement seems very sound. The construction of sewage lagoons for storage, aerated to prevent odor, and located so they will feed into the outfall line of the proposed central sewage system appear to be a sound approach to solving Mr. Allardyce's present needs.

As to the hauling of partially or wholly digested sewage we believe this will pose no problem for the present 10 units. It would seem that a knowledgeable farmer would be glad to accept such spraying at an appropriate time of year.

One should consider the development of the Bridger Canyon Ski Area as of major benefit to the economy of Bozeman as well as all of Montana just as is the Big Sky Development.

If your engineers find no technical problems in the plan as developed by Thomas, Dean, and Hoskins by all means give Mr. Allardyce the much delayed go ahead.

Sincerely Yours,

Erwin Lachenmaier
Eva Lachenmaier

Erwin and Eva Lachenmaier

19 January 1974

Doctor John Anderson
Department of Health and Environmental Sciences
Helena
Montana 59601

Dear Doctor Anderson:

Once again we write to express the concern of Gallatin County residents over the Bridger Pines subdivision. These comments are directed to assist the Department in the preparation of a new draft environmental impact statement on the proposed development.

As we understand it, the Department has explicit statutory decision-making responsibility in at least three areas: water supply, water quality, and solid waste disposal. We believe that in each of these areas the Department has failed to meet the requirements of the Montana Environmental Policy Act (MEPA).

Water Supply: It is regrettable that the Department has been unsuccessful in persuading Bridger area landowners to adopt a master water plan. However, this fact does not explain the preparation of a draft environmental impact statement prior to the determination of the volume of recharge capability at the proposed site. Absent this data, the occurence of an 80-foot well with a 25-gpm capacity is not terribly revealing. The additional drawdown tests referred to in the impact statement should have been done before the draft, not after.

Sewage Disposal and Water Quality: It is difficult to critique the sewage disposal system proposed, as the ultimate disposal site changes often, and, to our understanding, is currently undetermined. As you are aware, the citizens of Park County have strongly opposed the transportation of sewage into that area. Again, on this point, the Department's impact statement appears premature. Until the developer has proposed a fully operational sewage disposal system, the Department's review process should not be triggered.

Page 18 of the impact statement suggests sedimentation problems necessitate "careful control" and "extreme care." What sort of caution is the Department requiring?

A circular argument is offered on page 18: "There would be no contamination of ground or surface waters from the sewage treatment and disposal systems providing the state standards are met." This ignores the question: "Will they be met?"

Early in the impact statement the Department indicates a requirement that any facility accepted "must be designed to function as a component of a central sewage system that would be expected eventually to serve the entire high density area." Does this decision still hold? Does the Allerdyce proposal meet this requirement? Would the Allerdyce proposal fit into a system of "secondary treatment plus nutrient removal"?

Solid Waste: To state that a commercial trash hauler is available does not really specify whether in fact a system has been agreed upon and will be used. Additionally, are there any social costs attending the use of the commercia services?

The above are not the only deficiencies in the environmental impact statement. There is no serious effort to discuss the social costs of the proposal: county services, energy costs, etc. The propriety of further second-home construction should also be addressed. If the Department believes these impacts to be beyond its control, the legislature should be notified of statutory deficiencies in regard to MEPA.

In sum, we suggest that the Department draft is both premature and inadequate. Statements such as this circumvent the requirements and intent of MEPA. Accordingly, we strongly suggest that the Department gather the lacking information and prepare a second draft. We would also suggest that the confusion attending this project could best be cleared up at a public hearing.

We will appreciate hearing from you on this matter.

Sincerely,

Morris Jaffe

Morris Jaffe
1311 South Black
Bozeman, Montana 59715

Donald R Reichmuth

Donald Reichmuth
Bridger Canyon
Bozeman, Montana 59715

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ENVIRONMENTAL SCIENCES
DIVISION

DR. WAYNE E. THOMPSON, D.D.S.
414 FIRST NATIONAL BANK BUILDING
TELEPHONE 587-7411
BOZEMAN, MONTANA 59715

December 14, 1973

Mr. Daniel Vichorek
Technical Writer
Environmental Sciences Division
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Sirs:

I have thoroughly read and studied the impact statement for the Bridger Pines development at Bridger Bowl. I find the statement well done and fairly complete. I do not change my opinion which I sent to your department when news of the start of construction of the Bridger Pines development finally was made public.

I still feel the developer was wrong in proceeding in construction without a permit from proper authority.

I further state I am not against development of the Bridger Bowl area if the development will follow a reasonable master plan and the development proceeds in a legal manner which means complying with sanitary restrictions and regulations; after getting a required permit from proper authority. I have twelve years of experience on the Bridger Bowl Board of Directors to lend as some authority for my opinion.

Since when has a county attorney or a city county planner gained knowledgeable authority to supercede the expertise and knowledge in health matters of trained county health officers, sanitarians, and health boards?? I feel it is still against the law to construct anything on the site of the Bridger Pines development without a permit from the proper authority.

The county sanitarians constantly have applications from "nice guys" to construct some type of sewage disposal facilities which do not meet legal requirements of public sanitation. These permits are denied until plans are revised to meet the requirements. These, "very nice people", do not go around the proper authorities and chanels to influence some public official to help them break the law-legally. So, why should any developer, "very nice person," or not, be given privileges not allowed anyone else?

DR. WAYNE E. THOMPSON, D.D.S.
414 FIRST NATIONAL BANK BUILDING
TELEPHONE 587-7411
BOZEMAN, MONTANA 59715

Further, I wish to state that should variances and illegal privileges be given to anyone involved in the development of a sewage system for Bridger Canyon, then that, I believe, will prevent a rural improvement district from ever being considered.

Therefore, I wish to go on record as against the proposed sewage disposal system suggested by the Bridger Pines developers short of complete on site sewage treatment. I further believe the developer should be legally enjoined now from further construction of any kind and not wait for occupation of the structures before bringing legal action.

Sanitary restrictions should not be removed.

Sincerely,

Wayne E. Thompson D.D

Dr. Wayne E. Thompson
D.D.S.

WET/jo

P.S. I am making these comments as an individual - not in my capacity as Chairman of the City & County Board of Health

W.T.

Box 78, Route 3
Bozeman, MT 59715
December 20, 1973

Dr. John S. Anderson, Director
Dept. of Health and Environmental Sciences
State of Montana
Helena, MT 59601

Dear Dr. Anderson:

I am writing to protest the proposed sewage disposal plan for the Bridger Bowl area in Gallatin County. Review of the impact statement provided by your department suggests strongly that the developers of Bridger Pines, in the course of choosing the least costly disposal method, have chosen a method that assumes some amount of subsidy from taxpayers of Gallatin County. It is most unfortunate that the developers went ahead with construction under this assumption.

On-site would be more expensive than hauling. The advantage of such an on-site unit is that the buyers of Mr. Allardyce's development would bear the full cost of sewage disposal. On the other hand, hauling imposes obvious social costs on the public: additional maintenance of county and state roads and additional traffic congestion and danger from mixing large trucks with small autos. For example, won't it become necessary to build a left turn lane to get trucks off hiway 239? Also, point number 2 on page 16 of the impact statement says that "The road from Interstate 90 to the evaporation pond currently is a farm road, which would be upgraded by the developers if hauling is allowed." However, the costs of upgrading the road are not apparent in the construction budget on page 9 (only $5,000 is included for roadway) nor is there any road maintenance in the operating budget on page 12. If the developers are going to assume this cost, it should reflect in these budgets. These costs should not be paid out of taxes.

This development may set two bad precedents: (1) If you approve this plan, other developers will be encouraged to let construction preceed public review; (2) Likewise, what will your department do about the next proposal to haul sewage? If you approve this project, how will you avoid these precedents?

Respectfully submitted,

Verne W House

Verne W. House, Ph.D.
Agricultural Economist

gb

2311 Highland Court
Bozeman, Montana 59715

20 January 1974

Dr. John Anderson
Director, Department of Health
and Environmental Sciences
Cogswell Building
Helena, Montana 59601

Dear Dr. Anderson:

I have reviewed the draft environmental impact statement (EIS) on Bridger Pines subdivision and find it wholly unacceptable. My chief objections are as follows:

1. The EIS is not based on any definite proposed action by the Department of Health and Environmental Sciences. An EIS, to be valid, must deal with the specific impacts of a specific action. This statement merely tells us (page 19) that "the department must either approve or disapprove" the developer's proposed water and sewer systems. We already know that. But what does the department intend to *do*? Approve or disapprove? Until that is known, impacts cannot be properly delineated or evaluated and the document in question is not, in fact, an EIS.

2. The relationship of Bridger Pines and the entire Bridger Bowl high density area causes monumental confusion. The statement drifts back and forth between Thomas, Dean, and Hoskins projections for some cloudy future with 965 living units, 100 Bridger Bowl employees, and 3,777 skiers and immediate projections for the 60 (or is it 30?) units of the subdivision. Confusion is heightened, and credibility diminished, by mysterious "statistics," including tables giving gallons of sewage per day, haul days per year, storage periods, etc. as well as costs of truck drivers, lagoon operators, and such.

Anent those tables, a little figuring on the margin gives us 822 truck trips per year for 60 units. That would mean about 13,000 truck trips per year for 965 units. And for 965 units plus 100 employees plus 3,777 skiers? Egad! The mind boggles and the road buckles! How about asking Burlington-Northern for a unit train?* And who is going to pay for all that driving and maintenance? The EIS doesn't say, but I suspect that prospective occupants would want to know.

Meanwhile, what really are we asked to consider? Is this an EIS for a 60-unit subdivision or for a total Bridger Bowl development?

3. Certain statutory and regulatory requirements governing departmental approval have apparently not been met:

a. *The water supply has not been adequately tested*. According to the EIS, no tests of recharge capability have yet been conducted, although I believe these are necessary *before* an impact statement is drafted.

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* Still on "statistics," why would 100 Bridger Bowl employees produce 12,975 gallons of sewage per day and 3,777 skiers only 11,595 gallons per day (page 3)? How did the developer's engineers arrive at these figures?

b. The development has neither a master sewage treatment and disposal plan nor a master water plan. Page 2 of the EIS states:

> "...the department took a position that no sanitary restrictions would be removed from any proposed development in the Bridger Bowl area until a master plan was available which provided possible solutions to the difficult sewage disposal problems in the area."

No such plan, to my knowledge, is available. Will the department abandon its position and lift restrictions? How will such abandonment, if it occurs, be justified?

Page 17 of the EIS states that although Bridger Bowl area land owners have been asked "on several occasions" to develop a master water plan, "To date the department has not been successful in persuading the land owners to make such a plan." Will the department retreat from its insistence on this critically important plan? How will such a retreat, if it occurs, be justified?

c. The development has no operational sewage disposal plan. EIS information that sewage will be hauled to a disposal site in Park County is apparently "inoperative" and, in fact, no disposal site has yet been found. If the department doesn't know where the site will be, how can it know whether DHES "requirements...for that area" (page 5) will be met? This is indeed "the case of the missing lagoon."

Obviously, in view of all the above deficiencies, the draft EIS will need a thorough revision before the review process, in compliance with the Montana Environmental Policy Act, can progress.

-

One aspect of Bridger Pines subdivision, touched on only briefly in the EIS, is to me the most important issue in the whole tangled situation. That is the issue of legality -- the proper enforcement of state law and the question of developer interest versus public interest. Allerdyce et al. is not an ethical business entity. Allerdyce shows bad faith toward the State of Montana (by premature construction in violation of state law) and also toward prospective buyers of the condominiums. Is the department aware that Bridger Pines is already advertising (see enclosed brochures) despite the fact that it has no sewage system, no department permit, and is, at this moment, an illegal operation? Why is the developer so certain about future operation that he would advertise? What is he telling prospective buyers about the water supply and sewage disposal problems? Does the department believe that his past and present attitudes and actions should be rewarded by lifting sanitary restrictions?

I am truly and deeply disturbed that the department has not taken vigorous action, long since, to enjoin the Bridger Pines operation. I am even more disturbed that the department is evidently considering a removal of restrictions under the present circumstances. Has the Water Quality Bureau, or whoever makes these decisions, really thought about the precedent that this removal would set? Every scofflaw, fly-by-night, bilk-the-sucker, make-a-fast-buck-and-damn-the-environmental-consequences developer in Montana would be given carte blanche for even worse depredations than have already occurred.

Strangely enough, the developer himself, via the Thomas, Dean, Hoskins report, seems to acknowledge that Bridger Pines might be a mistake, given "the physical nature of the problems" (EIS, page 17). Should the State of Montana magnify, compound, and perpetuate this mistake by allowing fleets of sewage-laden trucks to roll across the public thoroughfares while odorous ponds and unsightly tanks blight the landscape? (And while occupants scrabble for water from a 7-gallon-per-minute well?)

I believe that the questions I have asked, and many, many others from a substantial number of citizens, can only be answered by a thorough public airing of the Bridger Pines situation. Therefore I respectfully urge the Department of Health and Environmental Sciences to hold a public meeting on the subdivision before any irreversible decisions are made.

Sincerely,

Elizabeth Smith

Elizabeth Smith

Enclosures

Bridger Bowl promotional brochure
Page from newsletter of U. S. Ski Association, Northern Division, Vol.III, No. 2

APPENDIX B

Following is a list of comments generated by the draft environmental impact statement:

RESPONDENT	COMMENTS
Mr. & Mrs. Clifford Montagne, Bozeman	We oppose any temporary sewage disposal system for Bridger Pines. The developer might leave the formation of the RID entirely up to the property owners. Approval would set a precedent for other "fly-by-night" developers in the canyon if it is allowed to haul its sewage out. All landowners in the area should again be asked to finance a treatment plant that would serve all present and future development. The flagrant violation of the law in building while sanitary restrictions are still in effect is very disturbing.
Maxine Pentilla, Bozeman	Bridger Pines should be stopped unless sewage treatment can be completed "on the spot." The county attorney should obey the law, and prevent others from violating it.
Rick Applegate, for The Northern Rockies Action Group, Inc., Helena	The draft statement indicates that fully adequate tests to determine the availability of adequate water supplies have not been performed. Such tests should be performed prior to issuance of a draft statement. The continual shifting of plans by the developer has made it difficult for citizen environmentalists to keep up. The draft statement should not have been published until the developers plans were final. Further consideration of Bridger Pines should be suspended pending receipt of sufficient data on the final sewage disposal and water supply systems. A second draft statement should be prepared to cover the above concerns.
Charles McGuire, Perry Nelson, for Gallatin Sportsmen's Association, Bozeman	We expect the mandate in Section 69-5003 of the 1947 Revised Codes of Montana to be complied with in all subdivisions. Neither the public nor the private interest has been served by the county attorney's refusal to take action until the structures are illegally occupied. We support the state proposal that a master plan be required for water supply, sewage treatment and disposal facilities. If water and sewage limitations prevent the allowed maximum development planned for the Bridger watershed, Bridger Pines should be disapproved and other recreational facilities in the area should plan to keep their customers in Bozeman overnight.
David E. Marshall, Libby	It is diffucult to read the Bridger Pines proposal with a straight face. It is a joke that should be laughed out of existance.
Robert Hoyem, for the Park County Farm Bureau, Livingston	The bureau "declares its complete and unalterable objection to the proposed sewerage disposal plans within Park County, or in watersheds leading into Park County."

RESPONDENT	COMMENTS
(Illegible) Cook, Sally Cook, Bridger Canyon	Removal of restrictions would set a precedent for other developers. The Alford study of water resources at Bridger Bowl indicates there is not adequate water for the maximum density allowed in the Bridger Canyon zoning plan. Since Bridger Pines would remove water from the development area and remove it to another area (as sewage), we believe this procedure, if allowed to snowball will seriously deplete the water in Bridger Creek and cause shortages and pollution for residents downstream. We believe the Bridger Pines sewage plan is poorly engineered as evidenced by the many changes and contingencies still unsettled. We ask that Bridger Pines be denied a permit until they present a solid plan that does not threaten residents downstream.
Donald L. Brelsford, Bozeman	The draft statement failed to consider the loss of water from the watershed that would result from the hauling of sewage elsewhere. Used water should be treated and returned to the ground or stream for further use downstream.
Jim Story, (Bozeman?)	"I find it hard to believe that something this ridiculous and destructive has been even proposed in an area where preservation of our unspoiled and remaining land is of the utmost interest and importance in the minds of all conscientious citizens."
Agnes Smith, Livingston	Sewage should not be hauled into Park County.
Urana Clarke, Livingston	A development like Bridger Pines is of questionable value anywhere in Montana. If such a project is approved the residents ought to be told why. Its effluent should stay where it is produced.
Jack Shiplet, Livingston	Bridger Pines wastes should not be disposed of in Park County. The road proposed for use in the hauling is not always open and isn't wide enough to safely transport the sewage along with the existing traffic. The Park County Planning Board should have gotten copies of the draft statement. Building should be stopped until proper sewage facilities can be built in Gallatin County.
Mr. & Mrs. Ben C. David, Bozeman	Trucking sewage is not a workable solution, as the Livingston cut-off road is treacherous in places. The developers should be required to build an adequate sewage treatment facility on their own property.
Mr. & Mrs. Sig Eggar, Livingston	"We feel this is surely a 'dirty stinking deal' anyway you look at it, and can't help but feel that Park County will be on the receiving end of an unattractive part of Gallatin County's progress . . ." We oppose hauling of sewage into Park County.

RESPONDENT	COMMENTS
Cecil A. Wells, Bozeman	The so-called remote area at the head of Quinn and Flynn Creeks actually has been subdivided into 36 beautiful homesites. The owners of the lots do not want sewage lagoons in the area.
Norma Busby, Bozeman	The area proposed for lagoons is not the least bit remote or uninhabited, and the residents do not want any sewage lagoons nearby.
Lawrence W. Taylor, Livingston	Bridger Pines should be held to the same strenuous rules and regulations as an individual, to prevent contamination of ground or surface waters.
Mr. & Mrs. C. McClain, Livingston	We object very strongly to the plans of Bridger Canyon developers to haul sewage into Park County.
Patrick C. Jobes, Bozeman	A better means of sewage disposal should be found.
Paul J. Boehm, Livingston	Gallatin sewage should not be dumped in Park County.
John Stocksdale, Bozeman	"We do not want this approved under any circumstances."
Larry Goodroad, Bozeman	The Livingston cut-off road could not long support heavy truck traffic, such as the tank trucks proposed for use in hauling sewage.
Dr. T. R. Clemons, Livingston	"We don't want this in our drainage area at all."
Charles C. Bradley, Bozeman	"The statements on water supply, water quality and hydrology appeared to be more a series of cautions and warnings than anything substantive." The draft statement contained insufficient information to allow an evaluation of the water supply. What should society's attitude be toward lavish, resource-wasting second homes? Who is responsible for saying "go" or "no go" for such developments. Bridger Pines should be delayed to allow drafting of a clearer and more definitive impact statement.
Harry McNeal, for Montana Wildlife Federation, Bozeman	Violation of the law shows that the developers are not responsible men and that they have little regard for the rights of others. It is oversimplification to say that compliance with state standards will guarantee there will be no water pollution. Second home developments should have low priority in an energy short society. There is not evidence that the Montana landowner will take a responsible stand on environmental degradation, so the health department has a unique opportunity to "make responsible decisions for us and our heirs." The restrictions should not be removed from the property.
Ernest A. Sandberg, for Empire Federal Savings, Livingston	Sewage lagoons in the proposed Park County site could lower adjacent property values. The lagoons also might cause pollution of nearby springs that will be developed as water supplies for future homes in the area. Bridger Pines sewage should be transported to the Bozeman sewage plant.

RESPONDENT	COMMENTS
Glen A. Buss, Bozeman	At least half of the proposed alternate route for sewage trucks into Park County is across privately owned land where no easement would be forthcoming for the haul project. The $5000 figure cited for road construction is too low, considering that the U.S. Forest Service estimates road building costs at $10,000 per mile where gravel is available nearby. Such anomalous figures cast doubt on the accuracy of other figures in the statement. Total operating costs appear much too low. The Quinn Creek road is not a farm road as stated. Lagoons at the proposed site would pollute the creek and nearby springs. How will the project be maintained after the developers "have sold out and disappeared into the 'Big Sky?' A more efficient system should be developed to conserve energy.
James D. Morton, Bridger Canyon, Montana; Olympic Valley, CA	If developers in the Bridger Bowl area want development, they will have to unite and plan to find water to meet their ultimate goals. This may mean trapping or developing water in the south fork of the Brackett Creek drainage, or in the Slushman Creek drainage. Bridger Pines should be required to provide county officials with water quality monitoring by qualified engineers at reasonable intervals. If this monitoring shows that Bridger Pines is degrading water quality, the development should be vacated until a local or regional system is developed. An interim system should be granted for the units now constructed.
Mrs. E. E. Farmer, Bozeman	Bridger Pines received special consideration which would not be accorded an ordinary individual in a similar situation. Individuals could not get away with building illegally. Human nature and the energy supply question make it questionable whether the sewage haul system would be maintained properly. Someone with authority should state publically that there apparently is no satisfactory permanent solution to the water and sewage problems at Bridger Pines. Authorities should begin with proceedings on apparent violations of the law by the developers in erecting ten condominium units prior to removal of the sanitary restrictions.
Mary ElNegoumy, Bozeman	"Bridger Canyon is one of the most beautiful of the surrounding areas . . . and now some out-of-state promoter . . . who obviously doesn't care about those of us who live here, and who counted on the department of health being so yellow-bellied and liver-lipped that they would never say no . . . wants to degrade one of our natural beauties." If developers are allowed to continue building just because they already have money in the project, the state will be opened to much more degradation of the environment. "Please be hard-nosed about this."

RESPONDENT	COMMENTS
James H. Goetz, Bozeman	The developer already has made an illegal head start, so the health department should not be in any hurry to expedite its consideration of the matter. The department warrants severe criticism for its inaction regarding the illegal commencement of construction. The draft statement contains insufficient information to allow adequate evaluation of the water and sewage systems, or to gauge the extent of the development. The precise question before the board of health is not clear in the draft. Trucking the effluent of the affluent seems to be an unnecessary waste of scare fuel.
Dorothy Bradley, Bozeman	The Montana Environmental Policy Act will not have been complied with until critical information regarding water and sewage is provided for evaluation. Citizens who may wind up paying extra taxes to cover expenses such as extra road repair, plowing and sanding, have not been able to get a straight story as to the exact nature of the development, as the developer keeps changing his plans. A second draft statement should be provided before there is any removal of sanitary restrictions.
Richard A. Wortman, Bozeman	"I am completely opposed to the proposed plan to truck sewage from Bridger Canyon as there are viable alternatives available."
Dr. Robert A. Bray, Livingston	The area of Park County proposed for sewage disposal has too many people and too poor roads for such a development. "I therefore ask that your department reconsider its apparent positive support for this means of disposal and settle for nothing less than a central sewage disposal collection and treatment system for the entire Bridger Bowl area."

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ATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

February 22, 1974

Honorable Thomas Judge, Governor of Montana, Helena
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City-County Health Department, Box 639, Bozeman
Gallatin County Attorney, Courthouse, Bozeman
Gallatin County Sheriff, Courthouse, Bozeman
Jim DeWolfe, Bozeman Chronicle, Bozeman
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Department of State Lands, Helena
Department of Natural Resources and Conservation, Helena
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Janet Van Swearingen, League of Women Voters, 5205 Kerr Drive, Helena
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Dorothy Bradley, House of Representatives, Capitol Building, Helena
Ron Aasheim, T.A.P., Inc., P. O. Box 1348, Bozeman
Glen Buss, 1312 South Black Avenue, Bozeman
John C. Geach, Sanitarian, Box 281, Glendive
Doris Milner, The Montana Wilderness Association, Route 1, Box 1410, Hamilton
Ed Mohler, The Gallatin County Tribune, 201 E. Mendenhall, Bozeman
David L. Noland, The Noland Agency, 1002 Pioneer Building, St. Paul, Minnesota
Livingston Public Library, Livingston
Bozeman Public Library, Bozeman
Park County Planning Department, Courthouse, Livingston
Garland Shaw, Pesticide Division, Department of Agriculture, Helena
Bob Shiplet, Clyde Park
Larry Uman, Environmental Studies Department, University of Montana, Missoula
Mrs. Fred J. Wirtz, 432 North 5th Street, Livingston, Montana 59047
Mrs. Craig Zakovi, 514 North Montana, Bozeman

Ladies and Gentlemen:

Attached is a supplement to the draft environmental impact statement issued December 6, 1973 for the Bridger Pines subdivision in Bridger Canyon.

This supplement is being issued at the advice of the Environmental Quality Council to inform the public more fully concerning the details of the sewage disposal and water supply system proposed for use in the subdivision. All comments and questions regarding this supplement should be sent to me by March 8.

As soon as possible following this date we will issue a final environmental impact statement in which we will address all questions raised in response to the draft statement and this supplement.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

cc: Ben Wake

SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR BRIDGER PINES SUBDIVISION

Water Supply

As noted in the draft statement, there is one rather low-yield well on the property. The engineer used a non-standard technique to test the production of this well, but using the data provided from this test, the state was able to estimate the long-term water yield at 7-10 gallons per minute. A 50,000 gallon storage tank would be used in the water system.

Sewage Disposal

The developer still plans to haul the sewage generated to a disposal facility away from the subdivision.

This department still holds that the hauling of wastewater is not a desirable situation, where it can be avoided. Because of the physical constraints on the Bridger Pines area, however, hauling the sewage is probably as good a system as can be developed, provided proper care is taken.

The developer no longer plans to haul the sewage to a site in Park County. The current plan is to haul the sewage to the Belgrade city sewage treatment lagoon. A contract is being processed to allow Bridger Pines to use this system for five years. During this 5-year period, the developer hopes to be able to connect to a joint system in the high density area around Bridger Bowl which would be developed through formation of a rural improvement district (RID). If a system developed through an RID is not available, the developer would have to attempt to extend his contract with the City of Belgrade, contract with another community for disposal, or provide his own independent disposal system similar to the one now serving Belgrade.

For the temporary haul system, the developer plans to contract a 6,000 gallon tank truck. Specifications requiring high standards of operation and maintainence would be included in the contract. Hauling would be done during summer months when road conditions are favorable.

A wastewater treatment and storage pond system is now proposed on the Bridger Pines site. The wastewater will be treated to near secondary quality in an aerated lagoon, stored in a second aerated pond, and then disinfected and hauled during the summer to the Belgrade system for disposal. All lagoons would have to be positively sealed.

This department believes that any approval granted of a temporary system as described above for Bridger Pines should not delay the development of an area-wide solution to the disposal problem, such as could be provided by an RID. Persons buying a lot or condominium should be informed that the sewage disposal system is temporary and that it will be necessary for them to participate in the formation of an RID to furnish a permanent solution to the problem as soon as possible.

Further discussion of the water and sewage systems will be provided in the final impact statement.

Solid Waste Disposal

We are awaiting a letter from a commercial trash hauler affirming that he can and would handle solid waste generated by the subdivision. This will be discussed further in the final statement.

Action by this Department

The number of units released from sanitary restriction will depend upon the capacity of the water and sewage systems, as determined by this department.

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STATE DOCUMENTS
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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

January 30, 1974

Honorable Thomas Judge, Governor of Montana, Helena
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Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Bob Shiplet, Clyde Park, Montana
Fred J. Wirtz, 432 North 5th Street, Livingston
Northern Rockies Action Group, 9 Placer Hotel, Helena,

Ladies and Gentlemen:

Because of changes in the developers' plan of action, it will be necessary for us to write a supplement to the draft environmental impact statement for the Bridger Pines subdivision in Gallatin County.

This document will be forthcoming whenever we are informed exactly where and how the developers plan to dispose of their sewage. They have told us they no longer plan to use the Park County disposal site that was discussed in the draft statement, but they have not proposed a new site.

You will be given a chance to comment on the supplement before this department takes any further action.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

DV:mrc

cc: Doctor Anderson
Mr. O'Donnell
Don Zollman
Richard Llewellyn

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STATE DOCUMENTS
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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

December 24, 1973

Honorable Thomas Judge, Governor of Montana, Helena
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Montana State Library, Helena
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Park County Commissioners, Courthouse, Livingston

Ladies and Gentlemen:

In response to a request, this Department has granted a 15-day extension of the comment period on the draft environmental impact statement for the Bridger Pines Subdivision in Gallatin County.

All comments should be sent to me by January 20, 1974.

Sincerely,

Daniel Vichorek
Technical Writer
Environmental Sciences Division

DV:mrc

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

STATE DOCUMENTS

December 6, 1973

DEC 13 19..

Honorable Thomas Judge, Governor of Montana, Helena
R. L. Allardyce, Allardyce Petroleum Company, 444-17th Street, Denver
Alice Fryslie, Multi-Business Service, Inc., 1111 North Seventh Ave., Bozeman
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Department of State Lands, Helena
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MONTANA STATE LIBRARY
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Ken Porter, 502 South Grand, Bozeman
Student Environmental Research Center, Room 212 Venture Center, Missoula
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Park County Commissioners, Courthouse, Livingston

Ladies and Gentlemen:

This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of this statement. An additional 15 days is available on request. All comments should be sent to the undersigned.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

cc: Ben Wake

SUMMARY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE BRIDGER PINES SUBDIVISION

The first submission of data to this Department regarding the Bridger Pines Subdivision was made August 6, 1971. At that time it was proposed that individual septic tanks or an Armon system be used to dispose of sewage in the development.

These systems were rejected as unsatisfactory by this Department.

Following this rejection, the area encompassing Bridger Pines, Bridger Bowl, and five other parcels of adjacent property was zoned for intensive use. At about the same time, the Bridger Bowl sewage system failed, underlining the problems to be faced if the area were developed to the extent allowed under the zoning ordinances.

In view of these problems, the Department ruled that any temporary, interim sewage systems proposed for use in the intensive use area must be capable of reliably preventing contamination of ground or surface water while operating alone, and must be designed to function as a component of a central sewage system that would be expected eventually to serve the entire high density area.

No such system was suggested by the developers until August, 1973. At that time, they submitted a plan recommending that the central sewage system for the intensive use area be based on the use of 7500 gallon tank trucks to remove sewage from the area to an evaporation pond in a remote location.

Subsequently, they proposed use of a 3500 gallon truck to periodically remove sewage from a temporary lagoon that they proposed to build to collect the sewage from Bridger Pines. No decision has been made on the suitability of this proposed system, although it appears capable of meeting the regulations enforced by this Department. However, in view of the negative comments regarding the proposal already received from other governmental agencies with authority over various aspects of the plan, there is some doubt whether the plan can be implemented.

The decision whether to approve the proposal will hinge largely on the response to this impact statement.

All the correspondence and data this Department has received concerning this development is public information and may be examined at our offices in Helena.

The environmental impacts resulting directly from this development probably would be minor. There would be some danger of unforeseen impacts resulting from accidents involving trucks loaded with sewage, but these would be difficult to quantify. The use of electricity for heating will cause impacts away from the site, where increased electrical demand will result in the construction of coal-fired power plants. Some impacts might result from the construction of the evaporation ponds in a remote location.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

BRIDGER PINES SUBDIVISION
GALLATIN COUNTY

Pursuant to the Montana Environmental Policy Act and Montana's laws controlling public and private water supply and sewage disposal for subdivisions, and water pollution control, the following draft statement was prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences, which has been asked to remove the sanitary restriction from the above-cited property. Montana's laws governing water supply and sewage disposal for subdivisions requires that sanitary restrictions be removed before construction on subdivided property of any building requiring facilities for water supply or the disposal of sewage, trash or garbage. This development is located in the southeast 1/4 of Section 19, Township 1 North, Range 7 East, northeast of the Bridger Bowl ski area in Bridger Canyon, Gallatin County and is shown on Map 1. Map 2 is a plat of the proposed Bridger Pines Subdivision.

History and Description of the Project

On August 6, 1971, this department received the first submission of material on this development from the engineering firm of Thomas, Dean and Hoskins. In the original proposal, the property owners, Allerdyce Petroleum Company of Denver and Bridger Valley, Inc., represented by Mr. Christensen proposed to develop 30 lots on 30 acres of ground. The proposal provided 30 sites for individual dwellings and 30 additional condominium sites for a total of 60 units. Each individual lot owner would own a 10,000 square foot lot (100 feet by 100 feet) plus 1/30 of an open area set aside within the development. Under the plans submitted, 2.7 acres would be used for streets, 11.95 acres for open space, 6.89 acres for lots, and 8.46 acres for condominiums.

Thomas, Dean and Hoskins proposed wells with four to six users each as the water supply for the development. Septic tank drainfield systems or Armon systems were proposed for sewage treatment and disposal. No wells had been drilled on the property, but a log of a well on the adjacent Forsyth Ranch indicated that a well 95 feet deep producing 15 gallons per minute was serving the ranch facilities.

Information submitted by Thomas, Dean and Hoskins and obtained during on-site reviews by department personnel indicated several conditions existed in the Bridger Bowl area which would have adverse effects on successful operation of septic tank drainfield systems or Armon systems. Soils appeared to be completely saturated due to natural runoff during extended periods each year, soil systems appear shallow with near surface bedrock in evidence in many locations, a great deal of the terrain is too steep for such systems, and net evaporation appears to be nil making evaporation schemes unfeasible. A review of the above conditions lead to the department to reject the septic tank drainfield and Armon system proposal and recommend that a central sewage collection, treatment and disposal system be considered.

During the initial phases of the development, the following two events were also taking place:

1. The Bridger Canyon Property Owners Association was developing planning and zoning for the Bridger Canyon, and,

2. The drainfield system serving the Bridger Bowl ski facilities failed.

The results of the planning and zoning efforts indicated that high density development in the Bridger Bowl area was probable and further information obtained by Morrison-Maierle, Inc., in an attempt to provide new sewage disposal facilities for Bridger Bowl, indicated that adequate sewage treatment and disposal in this area is a difficult proposition.

Because two significant opposing conditions appeared probable; that is, high density development in an area where existing conditions make adequate sewage treatment and disposal very difficult if not impossible and/or economically unfeasible, the department took a position that no sanitary restrictions would be removed from any proposed development in the Bridger Bowl area until a master plan was available which provided possible solutions to the difficult sewage disposal problems in the area.

In response to the department's decision, an effort was made to form a rural improvement district in the Bridger area to finance an overall study of the sewage disposal problems in the high density area. To date, there has been no general agreement among the property owners in the Bridger Bowl area about the need for an RID; consequently, there has been no district formed. With the debate continuing on the rural improvement district, Bridger Pines co-owner, Robert Allerdyce took it on himself to finance an engineering report on sewage treatment and disposal for the entire Bridger Bowl high density area. The report was prepared by Thomas, Dean and Hoskins, Inc., and was published in August 1973. The report considers several alternatives for sewage treatment and disposal to serve all present and future needs in the area zoned for high density use. For information purposes, a considerable portion of the report will be included in the following paragraphs.

Projected Population and Sewage Flows for the Intensive Use Areas

The following use projection and design criteria was prepared by Berg and Graybul, architects and planners, for the Bridger Canyon Property Owners Association.

1. 3 people per residential unit at 75% occupancy during skiing season.

2. 80 gals. per day per residence.

3. 1972-73 peak load for one day - 3,000 skiers.
   19XX peak load per one day - 8,500 skiers.
   % increase - 283.33%

4. 1971-72 skier days - 160,000
   19XX skier days - 453,300
   % increase - 283.33%

5. 1972-73 average number full time employees - 45
   19XX average number of full time employees - 100

6. 1972 fixture units - 26
   19XX fixture units - 75
   % increase - 288.45%

7. Average skier days - 120
   453,300/120 equals 3,777 skiers average per season

8. Formula for ski area requirements based on U. S. Department of Interior report:

   Water use in gallons per day equals 1.73 x number of full time employees x number of fixture units plus 3.07 x total skiers to area per day equals 24,570 gals. per day.

9. Three lounge restaurants in the commercial area with 200 customers per day at 7 gals. per day equals 4,200 gals. per day.

10. Three stores in the commercial area with 8 employees at 15 gals. per day equals 360 gals. per day.

11. One 50 unit motel in the commercial area with 4 employees, 170 fixture units, and an average occupancy of 75 people per day during the ski season. Water use in gallons equals 1.73 x 4 x 170 plus 72 x 75 equals 6,576 gals. per day.

Based on the above criteria, the sewage flows for the ultimate development would be as follows:

TABLE NO. 1 - SEWAGE FLOWS

	Estimated Sewage Flow gpd
AVERAGE WINTER FLOW (4 months)	
Housing development (965 living units) - 75% occupied	173,700
Bridger Bowl (100 employees)	12,975
(3,777 skiers)	11,595
Commercial	11,136
Total Average Winter	209,406

	Estimated Sewage Flow gpd
MAXIMUM DAY FLOW	
Housing development (965 living units)-100% occupied	217,125
Bridger Bowl (100 employees)	12,975
(8,500 skiers)	26,095
Commercial	11,136
Total Maximum Day	267,331
AVERAGE SUMMER FLOW (8 months)	
Housing development (965 living units)-50% occupied	115,800
Bridger Bowl - closed	None
Commercial	11,136
Total Average Summer	126,936
AVERAGE ANNUAL FLOW - 209,406 x $\frac{4}{12}$ + 126,936 x $\frac{8}{12}$ =	154,419

Sewage Treatment and Disposal

Utilizing the above projected population and flow information, Thomas, Dean and Hoskins, Inc. considered several possible methods of treatment and disposal of wastewater to meet minimum state standards. The following was taken from the engineering report.

"One method considered was the standard lagoon concept with total retention. This concept is not practicable for development within the Bridger Bowl area due to restrictions of land available, the steep slope characteristics of the area, and the extremely low evaporation rate.

Another method considered was that of aerated lagoons with winter retention of approximately 240 days. Ultimate disposal would be by spray irrigation. We checked the available land within the immediate area and found that the only possible land was U. S. Forest Service land or the ski lift area itself. Both areas are too steep and are too restrictive in size to allow plant growth during the short growing season. Pumping against such severe heads would be costly and unreliable.

The next solution considered was to utilize areas downstream from the ski area for a spray field and treatment facility. There are only two areas of suitable slope, plant growth, and adequate size within the distance of approximately three miles. The availability of these areas was checked. The owner will not consider putting the facilities on his land because the best land use has not been established at this time and the facility could be detrimental to the effective development of his land.

Another method of disposal considered, with no discharge to the Bridger Creek, was the total hauling of sewage from the site. Raw sewage could be hauled or some degree of treatment could be provided prior to hauling. The method of hauling would be restricted to sealed tanks and the system would have to provide adequate storage capacity and adequate transport equipment to insure a condition of no discharge into the stream. In addition to hauling there would be a treatment facility at the disposal site, at some location other than Bridger Bowl, which would have to meet the requirements of the State Department of Health and Environmental Sciences for that area. A system at a remote location could be constructed to provide no discharge.

Construction of a conventional, primary, and secondary sewage treatment plant would not meet the effluent quality requirements, and, therefore, cannot be considered adequate.*

To provide an effluent of quality equal to the Bridger Creek would require a secondary plant plus nutrient removal. Two basic concepts have been evaluated under this alternate. The first concept would be the use of a surge tank which would have the effect of leveling the weekend load to a more uniform average daily flow throughout the week. This surge tank would be followed by an extended aeration system which would have the effect of nitrification of the ammonia as well as the normal considerations of BOD and suspended solids removal. The aeration plant would be followed by clarification, chemical precipitation for phosphate removal, and filtration for ultimate clarification of the contact basin effluent. Chlorination would follow the filtration where the coliform reduction requirements could be satisfied as well as additional nitrogen could be converted to chloramines. Following the chlorination, carbon columns would be utilized to remove the minute carry-over and BOD demand. This would also remove the chloramines. Following the carbon columns, a small tank would provide aeration to buff off chlorine and develop a suitable dissolved oxygen content in the effluent.

A second concept considered for nutrient removal again used a surge tank and extended aeration to level the flows throughout the week. The extended aeration system would be followed by a membrane filtration unit. The membrane filtration unit would remove BOD in excess of 99%, remove all settleable solids and suspended solids, and thus reduce the total solids. The membrane unit would also reduce the total alkalinity of the sewage. Following the membrane unit would be ion exchange columns for removal of the phosphates and the nitrates, magnesium, sodium, and natural chlorites. The table of parameters, (Table 2) shows the estimated character of the sewage, the recorded characteristics of Bridger Creek, the anticipated results from an extended aeration precipitation system, and the extended ion exchange system.

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*Any discharge to a surface stream in this area must meet the requirements of the state's policy of non-degradation of high quality waters.

Of the two mechanical type treatment plants considered, the ion exchange would provide a better degree of treatment and would be more reliable in operation.

Normally, in large plants, the extended aeration precipitation system is more economical to operate than the ion exchange system. However, in a small plant of this nature, the difference in the two systems would be relatively small. The principal increase in cost in the ion exchange system is for regeneration. Of the total flow for the ion exchange, 7% is brine which must be handled separately for disposal. However, the aeration precipitation system has considerably more sludge, which presents more problems in disposal than the brine. Sludge tends to retain the water and takes a much larger area for disposal by evaporation. There is, of course, a much greater amount of residue from the sludge than from the brine. We would propose to use lagoons located at an alternate site away from the recreation area for disposal of both sludge and the brine. Hauling would be required.

We estimate that the operating cost of the ion exchange system would be approximately 10% higher than for the extended aeration precipitation system. However, of the two mechanical type treatment plants, we recommend the ion exchange because it would provide a better degree of treatment which would meet the requirements of the State and Federal regulatory agencies."

Table 2 is on the following page.

Figure 1 shows the schematic flow diagrams for the types of sewage treatment systems that were given final consideration for the Bridger Bowl area in the engineering report.

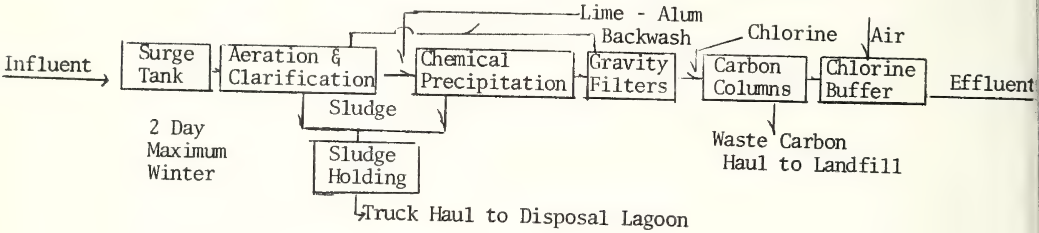
TABLE NO. 2 - PARAMETERS

Parameter		Estimated Sewage	Bridger Creek		Extended Air Precipitation Finished Eff.	Extended Air Ion Exchange Finished Eff.
			Maximum	Minimum		
DO	mg/1	0	12.0	7.5		
BOD (5 day)	mg/1	300	8.0	1	2	<1.5
Total Alkalinity (CaCO3)	mg/1	200	240	140		< 50
Residue (Total)	mg/1	1000	260	135		110
Residue (Total Nonfilterable)	mg/1		43	0.0		
Residue (Settleable)	mg/1	12	15	0.0	2	0
NH_3-N	mg/1		0.95	0.01		
NO_2-N	mg/1		0.35	0.01		
NO_4-N	mg/1		0.90	0.07		
Total (K) Nitrogen (N)	mg/1	85	1.96	0.30	3	0.1-0.3
Total Phosphate (PO4)	mg/1	12	1.5	0.01	2	<1
Orthophosphate (PO_4)	mg/1		1.91	0.01		
Calcium (Ca)	mg/1		62	52		10
Magnesium (Mg)	mg/1		12	10		tr
Sodium (Na)	mg/1		14	5		15
Chloride (Cl)	mg/1	175	2	1		
Sulfate (SO_4)	mg/1		23	4		5
Temperature	°F	40°	67°	32°		
pH		8.0	near 8.0		8.5	6-7
Total Hardness ($CaCO_3$)	mg/1		220	120		
Total Coliform	per 100 ml.	5000	100	0	0.5	0
Fecal Coliform	per 100 ml.		0	0		

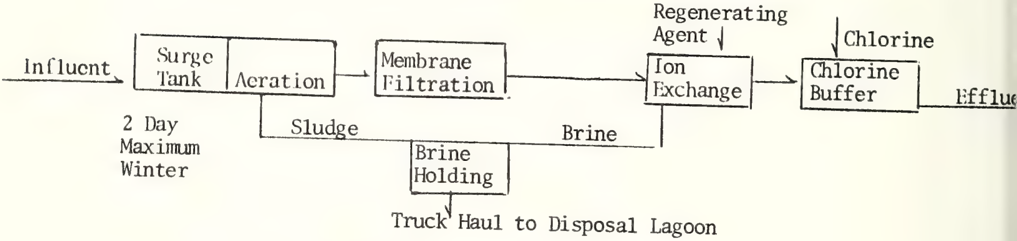
Plants to be sized with 2 units equal to 1/4 the average average winter flow and 1 unit equal to 1/2 the average winter flow.

125,000 gpd Average Annual --- 209,500 gpd Average Winter --- 267,331 gpd Maximum Winter

EXTENDED AERATION - CHEMICAL PRECIPITATION



EXTENDED AERATION - MEMBRANE FILTRATION - ION EXCHANGE



TOTAL HAULING OF SEWAGE TO PLANT OR LAGOON

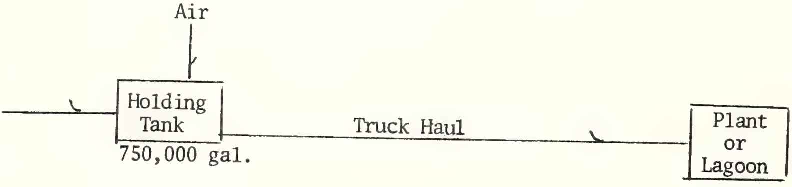


FIGURE 1

In their report, Thomas, Dean and Hoskins recommended against treatment of sewage on the site, primarily because of the lower construction cost of hauling sewage to evaporation lagoons in remote areas. Figures 2, 3, and 4 show the construction costs of the three options. Costs are based on August 1973 construction costs.

DISPOSAL BY HAULING ENTIRE FLOW TO A REMOTE LAGOON

COLLECTION AREA

Structure	8,000 S.F.	$ 160,000
Mechanical Equipment		30,000
Piping		10,000
Building Electrical		5,000
Yard Piping		2,000
Yard Electrical		2,000
Site Work		10,000
2 Trucks and Trailers		56,000
Excavation	120,000 C.Y.	120,000
Piping	600 L.F.	4,800
Structures	3 EA.	4,500
Fencing	4,800 L.F.	12,000
Roadway		5,000
Land	40 Acres	12,000
Seeding	10 Acres	1,000
Seal (Bentonite)	1,000 Tons	40,000
		$ 474,300
+ 18% Engineering, Legal, Administrative and Contingency		85,374
		$ 559,674

FIGURE 2

SEWAGE TREATMENT PLANT
AERATION-ION EXCHANGE-TOTAL FLOW

Building	14,000 S.F.	$ 224,000
Treatment Equipment		487,500
Brine Storage		15,000
Brine Lagoon		15,000
Plant Piping		50,000
Plant Electrical		50,000
Yard Piping		10,000
Yard Electrical		10,000
Auxiliary Power		72,000
Truck and Tank		25,000
Fence and Site		15,000
Well		2,000
Subcontractor Costs		74,600
		$1,050,100
+18% Engineering, Legal, Administrative and Contingency		189,018
		$1,239,118

FIGURE 3

SEWAGE TREATMENT PLANT
AERATION - PRECIPITATION

Building	20,000 S.F.	$ 320,000
Treatment Equipment		450,000
Sludge Holding Tank		7,500
Sludge Lagoon		10,000
Plant Piping		60,000
Plant Electrical		60,000
Yard Piping		10,000
Yard Electrical		10,000
Auxiliary Power		30,000
Truck and Tank		15,000
Fence and Site		15,000
Well		2,000
Subcontractor Costs		87,400
		$1,076,900
+ 18% Engineering, Legal, Administrative and Contingency		193,842
		$1,270,742

FIGURE 4

Operating costs of the proposed haulage system would not be appreciably less than the other two systems. Figure 5 illustrates Thomas, Dean and Hoskins cost estimates of the three systems.

Disposal by hauling entire flow to a remote lagoon:

Power	$ 50
Hauling (including truck maintenance and truck drivers)	5,833
Lagoon Operators	1,333
Total Operating Cost	$7,216

The extended aeration-precipitation system would have the following approximate monthly operating costs:

Power	$ 864
Chemical Cost	680
Labor Cost	5,000
Transportation Cost	350
Total Operating Cost	$6,894

The membrane-ion exchange system would have the following approximate monthly operating costs:

Power	$2,600
Chemical Reagent Cost	425
Operator Cost	3,000
Wet Hauling	815
Total Operating Cost	$6,840

FIGURE 5

"These costs will be less, based on the acceptability of first phase construction to satisfy the needs. We believe that the operator time required for the ion exchange plant would be less than the time necessary to properly operate and monitor the chemical plant."

Operating estimates as described above indicate the cost of hauling would be $86,592 annually whereas the cost of ion exchange treatment would be $94,080. The cost of the extended aeration precipitation system would be $82,728 annually. The engineer states in the report, "Although the latter method would have the lowest estimated monthly operating cost, it would not provide the reliability of operation or the assurance of the proper degree of treatment as would either of the other two methods. Therefore, we feel that an extended aeration system, chemical precipitation method should not be used. Initial cost would favor hauling to a remote lagoon site located on the east slopes of the Bridger range. It should be noted that the road from Bridger Bowl to this area is designated as secondary highway and has been programmed for improvements, including an all-weather paved surface."

Analysis of Sewage Treatment and Disposal

The following is also taken from the engineering report: "Cost estimates in this report show the lowest initial costs for construction would be the alternate of hauling the sewage to a remote site and constructing a total retention lagoon at such a site. The site we would propose to use would be approximately 12 miles northeast of the Bridger Bowl area across the Battle Ridge pass. The location would be on the Shields River drainage. By locating in this area, the evaporation rates would be much greater and land would be readily available. Although we have prepared our cost estimates on a total retention lagoon, it would be feasible to have a smaller lagoon with disposal by spray irrigation in this area. The improvements that would be needed for this alternate are as follows:

The sewage would be collected in a holding tank at the location shown on the plan sheet (Map 3). The tank capacity would be 750,000 gallons. The tank would be equipped with aeration equipment, communitors and leading pumps. The pumps would be used to circulate the contents of the tank.

Two 7,500 gallon tank trucks would be used to haul the sewage to a remote complete retention sewage treatment lagoon. As the flow increases, an additional truck will be required to meet the requirements. The truck would make from eight to ten trips per day."

A representative of Thomas, Dean and Hoskins, Inc. offered the following additional comments on the proposed hauling alternative:

1. The proposed location of a 750,000 gallon holding tank was approved by both the current owner of the Flaming Arrow Ranch and by the party negotiating to buy the ranch.

2. Odor from the tank would be eliminated or minimized by aeration.

3. The evaporation lagoon site as yet is undetermined; however, it will require approximately 160 acres of evaporation ponds to dispose of the sewage from the maximum development as proposed.

4. It would be 15 to 20 years before it becomes necessary to use the 7,500 gallon trucks, by which time the engineers expect to see the Battle Ridge road paved.

5. In the Shields drainage, it might be possible to negotiate with the farmer to spray irrigate effluent rather than evporate it.

The engineering report makes the following recommendations relative to interim sewage disposal solutions for the newly developing area:

"It is recommended that the design of the plant also utilize the concept of multiple units to provide for flexibility and growth as well as operation.

To accomplish the establishment of proper design parameters, we suggest that the State Department of Health and Environmental Sciences allow temporary facilities to serve interim development. These facilities should be restricted in numbers with consideration given to providing one sewage treatment facility for two or three cooperating owners. Temporary treatment facilities should be restricted to total retention lagoons, which are sized for predetermined maximum number of permitted connections. A developer should be required to provide guarantees that no discharge shall ever flow from these facilities into the receiving streams and must guarantee that should the facility become biologically overloaded, no further development within the area served by the lagoon would be permitted. Should the lagoons become hydraulically overloaded, the developer shall either restrict the development within the area, provide transportation facilities to haul the treated sewage from the lagoon for final disposal at a site acceptable to the State Department of Health and Environmental Sciences, either by spray irrigation from tank trucks or by again lagooning and utilization of natural evaporation. The developer should also be required to remove the accumulation of snow on top of the ice formation of the lagoons prior to spring thaws so that the lagoons will receive only domestic sewage."

Summaries and recommendations of the engineering report state:

"Ultimate improvements should include a holding tank facility, sewage hauling trucks and a sewage treatment lagoon constructed at a remote location. The location of the holding tank will be adjacent to Bridger Creek at an approximate elevation of 5,770 feet and approximately 1,000 feet from the Flaming Arrow Ranch buildings. The outfall sewer should be at a location to insure proper collection for all developments within the Bridger Bowl area.

We recommend that the private property owners of the Bridger Bowl area request the county commissioners to take such action as is necessary to create a rural improvement district or sanitary sewer district to provide and maintain sewage treatment facilities as described above. We recommend that the county commissioners retain an engineer to assist in preparing the documents for creation of this district. If a mechancial plant is used, a program of monitoring should be undertaken to establish design parameters. We feel that the state should issue permits for temporary facilities to provide for the orderly development of the area. We recommend that the county commissioners make application to the State Department of Health and Environmental Sciences for an EPA grant to construct the outfall sewer and sewage treatment facilities."

Proposed Interim Sewage Treatment and Disposal Solution for Bridger Pines Subdivision

Along with the recommended proposal for hauling sewage from the high density area, Thomas, Dean and Hoskins proposed an interim scaled-down version of the same type of system to dispose of sewage from the Bridger Pines Subdivision. Thomas, Dean and Hoskins describes the proposed sewage hauling system for Bridger Pines as follows:

"We have designed a lagoon for the subdivision based on 60 living units, 75 percent occupancy during the four month ski season, 50 percent occupancy during the other eight months, and per capita flow of 80. The area available for construction of this facility with a minimum impact on trees, will permit a surface area 100 feet by 200 feet. The lagoon is proposed to operate at a maximum depth of 12 feet with a minimum depth of two feet and storage flexibility of ten feet. An aerator will be provided to operate when the depth in the pond exceeds 6.5 feet. The lagoon will have no drain and dewatering will be accomplished by pumping into the tank truck. The side slopes will be 3:1 on the inside and 2:1 on the outside. The top width of the dike will be 10 feet. The lagoon will be sealed with four inches of compacted clay and five percent bentonite.

The lagoon will be dewatered by hauling the liquid to a remote site. As the housing in the subdivision develops, the required number of haul days by a 3,500 gallon tank truck would be according to the following table:

UNITS	HAUL DAYS AT SIX LOADS PER DAY
10	17
20	36
30	61
40	86
50	112
60	137

Sewage would be collected and stored in the lagoon for approximate periods as shown in the following table:

UNITS	STORAGE PERIODS
10	October through September
20	October through September
30	November through March/April through October
40	November through March/April through October
50	December through February/March through August/ September through November
60	December through February/March through August/ September through November

When the pond becomes filled, the sewage will be pumped into the tank truck. As the pond approaches the 6.5 foot level, an aerator will be used to provide additional treatment and odor control. The sewage will be hauled to a disposal site in Section 5 and 6, Township 2 South, Range 8 East. (The haul routes proposed by the engineer are shown on Map 4). Shallow ponds will be provided to dispose of the liquid by evaporation. The ponds will be 18 inches deep, provide a surface area of two acres for each million gallons hauled. The initial construction would provide for 1,000,000 gallons, which is estimated to be adequate for 20 units. Final analysis of evaporation rates would be determined after the ponds have been used and proper adjustments will be made in sizing."

The following additional information on the proposed Bridger Pines system was provided by the engineer:

1. Hauling would be timed to coincide with favorable road conditions.

2. The road from Interstate 90 to the evaporation pond currently is a farm road, which would be upgraded by the developers if hauling is allowed.

3. Sections 5 and 6 in the area proposed for disposal lagoons are owned by Chris Christensen, a co-owner of the Bridger Pines Subdivision.

4. The land proposed for the evaporation pond currently is a mountain meadow pasture. The existing vegetation is grass. There are no trees on the site.

5. The proposed lagoon in the subdivision would be out of site of any buildings in the subdivision.

6. The sewer outfalls for the Bridger Pines system would be located so that they could be connected eventually to whatever central system is installed for all developments in the intensive use area.

The development of adequate water supply to serve the proposed high density development of the Bridger Bowl ski area also appears to be a difficult problem. There is some doubt about how much groundwater is available in the area and surface water sources also appear to be quite limited. There is a feeling that lack of water in the area may restrict the total development of the intensive use area to a level below that allowed by the zoning ordinance. For example, a publication issued by Brelsford and Associates, industrial and engineering consultants, entitled "A Hydrological Evaluation of Maynard Creek Cutchment Basin in the Bridger Bowl Ski Area" concludes as follows:

"There is sufficient water available to supply the present needs of the Bridger Bowl Ski Area. It is doubtful that sufficient ground water reserves exist in the upper Bridger Creek drainage to allow the development of the allowable condominium complexes. If one assumes that each condominium unit would house an average of four individuals and that their water needs would be between 80-100 gal/person/day, the development of 800 condominium units would require a water supply of approximately 300,000 gal/day. In order to meet all anticipated demands, the ski area must have on the order of 25,000 gal/day. Total development of the area would necessitate at least an order of magnitude more water than we believe is present under natural conditions.

It is quite possible that development at the Bridger Bowl Ski Area will never reach the allowable maximum limits for reasons other than those associated with the physical contraints of the area. However, a significant amount of money has already been invested by the developers and the ski area alike in activities associated with development plans. It is felt that some of this money has been spent needlessly and a few expenses could have been avoided given a clearer pictures of the physical nature of the problems."

The state has recommended on several occasions to the various land owners in the Bridger Bowl area that a master water plan be developed as well as a master sewage treatment and disposal plan. To date, the department has not been successful in persuading the land owners to make such a plan.

A central water system is proposed for the Bridger Pines development. The engineering firm proposes that wells be used for the source of supply for the development. Presently one well, 80 feet deep with a reported capacity of 25 gallons per minute, has been drilled and will be used in the development. Additional drawdown testing is to be performed by the engineer to aid in the evaluation of the actual well capacity. Additional wells would be developed to satisfy future demands. A 20,000 gallon water storage tank is proposed for the original segment of the development.

Heat in the subdivision would be electric supplemented by fireplaces.

A commercial trash hauler is available to contract for removal of solid wastes from the subdivision.

All utility lines would be underground.

The requirement that land be dedicated as public park was waived and the proposed dedication of 11.95 acres of the subdivision as open area was approved.

Restrictive covenants have been prepared to prevent unsightly development and facilities within the subdivision.

All cut and fill for road construction has been completed. Some condominiums have already been constructed in apparent violation of Section 69-5003, R.C.M. 1947 which states, "No building or shelter which necessitates supplying water or sewage or waste disposal facilities for persons shall be erected until the sanitary restriction has been removed or modified." The county attorney was notified of the apparent violation; however, the county attorney's decision was to not take action until an attempt was made to occupy the condominiums.

The engineer described areas as generally mountainous ranging in elevation from 6,020 feet to 6,200 feet. Soils are glacial till and overlay the entire development. There are no streams flowing through the Bridger Pines area. The land is generally covered with heavy timber.

Slopes in the subdivision generally range from 10 percent to near 30 percent. To minimize sedimentation problems due to construction activities, land disturbance should be avoided in the steeper areas and should be carefully controlled in other areas.

The portions of the Bridger Canyon zoning ordinance relative to the high density use areas surrounding Bridger Bowl, including the Bridger Pines Subdivision is attached as Appendix A.

Environmental Impacts

The impact of total development of the high density area could be significant in terms of materials used, energy requirements and other stresses on the local environment. Estimated energy demands for the three sewage treatment and disposal alternatives proposed for ultimate development of the entire high density area are as follows:

Method 1 - Hauling --- A maximum of 96 gallons of diesel fuel daily plus a small amount of electricity.

Method 2 - Extended Aeration-Precipitation --- Up to 300 kilowatt hours daily.

Method 3 - Membrane-Ion Exchange --- Up to 900 kilowatt hours daily.

The following impacts generally relate to development of the 60 units for Bridger Pines Subdivision; however, it should be realized that these impacts can be expected to increase as development of the high density area proceeds.

Development of the Bridger Pines Subdivision in an area already intensively used should not have much effect on wildlife, most of which probably has long since left the area. Correspondence from the Fish and Game Department did not indicate any impacts on fish and game would result from development of Bridger Pines. It is possible, however, that there might be some impact on wildlife during construction of large evaporation lagoons in the mountain meadow areas.

There would be no contamination of ground or surface waters from the sewage treatment and disposal systems providing the state standards are met.

Some sedimentation problems could arise if extreme care is not taken to minimize ground disturbances during construction.

Some air pollution would result from gravel roads in the summer and from the use of fireplaces in the winter.

The use of electric heat could generate several negative effects beyond the boundary of the subdivision. Montana Power Company reports that each condominium would use six to eight kilowatts at peak and each house about ten kilowatts. The present transmission line to the area handles about 1,500 kilovolt amperes at peak and has a capacity of about 2,500 kilovolt amperes. The peak load of all 60 units at Bridger Pines would demand about 537 kilovolt amperes which does not exceed the capacity of the existing line. Elsewhere, however, such additional demands for power could result in increasing the need for construction of coal-burning power plants, resulting in additional use of water, land and degradation of air quality. Since the developer expects these units to be as second homes, they will increase the energy use of buyers who maintain two homes.

The central sewage treatment disposal system proposed for Bridger Pines; that is, holding pond proposed at Bridger Pines with truck hauling of sewage to the Christensen property for final disposal, should have little impact on the environment; however, if the hauling method is used, there might be increased traffic hazards and a potential pollution problem or nuisance problem should tank trucks hauling sewage be involved in traffic accidents.

There should be no impact on schools as the residents of the area are expected to be temporary on a seasonal basis.

There is yet no provision for fire protection in the subdivision.

Short-term/Long-term Comparisons

The increased demand placed upon energy and material sources by second home developments seems out of line with the voluntary restrictions of energy demand recently asked for by President Nixon. If mandatory restraints are applied, second home developments should have the lowest priority.

Irreversible Commitment of Resources

Energy and materials used to satisfy the needs of this development cannot be used elsewhere. There would be some loss of grazing and other land uses at the sewage treatment plant sites and disposal sites, especially if large evaporation ponds are utilized. However, this could be reclaimed.

Alternatives Available to the Department

The impact statement addresses problems relating both to the ultimate development being proposed for the high density area as well as those relating to the Bridger Pines Subdivision. The developers of the Bridger Pines Subdivision have requested the department to approve the proposed central water and sewer collection, treatment and disposal systems proposed. After reviewing information available on the proposal, the department must either approve or disapprove this proposal.

Information and comments received during the review period of this impact statement could have significant effect on the department's decision. The department has required that any interim sewage systems built in the high density area must be capable of reliably preventing contamination of ground or surface water while operating alone and must be designed such that they could function as a component of a central sewage system that is eventually expected to serve the entire high density area. Three alternatives proposed for sewage treatment and disposal are proposed for the total high density development. The system suggested for Bridger Pines could fit into any of the proposed alternatives.

There is little doubt that a system for Bridger Pines involving truck transportation of sewage could be developed to meet standards relating to collection, treatment and disposal of domestic wastewater. Before preparation of this statement, a great deal of negative comment was received, most of which related to the fact that people did not want heavy trucks on the Bridger Canyon road. The department has no control of the type of vehicles allowed on roads and highways. It is hoped that those agencies having jurisdiction will clearly state their position regarding this matter as comment on this impact statement.

As both water supply and sewage treatment and disposal present unusually difficult problems in this area, the department intends to remove sanitary restrictions only as specific water sources and sewage treatment disposal facilities are provided. Strict limitations will be imposed on the number of units that can utilize any specific facility.

The department will also exercise all powers available to insure that as development proceeds in the Bridger Bowl area, one central sewage collection, treatment and disposal system will be developed and that available water sources will not be over-used.

Comments

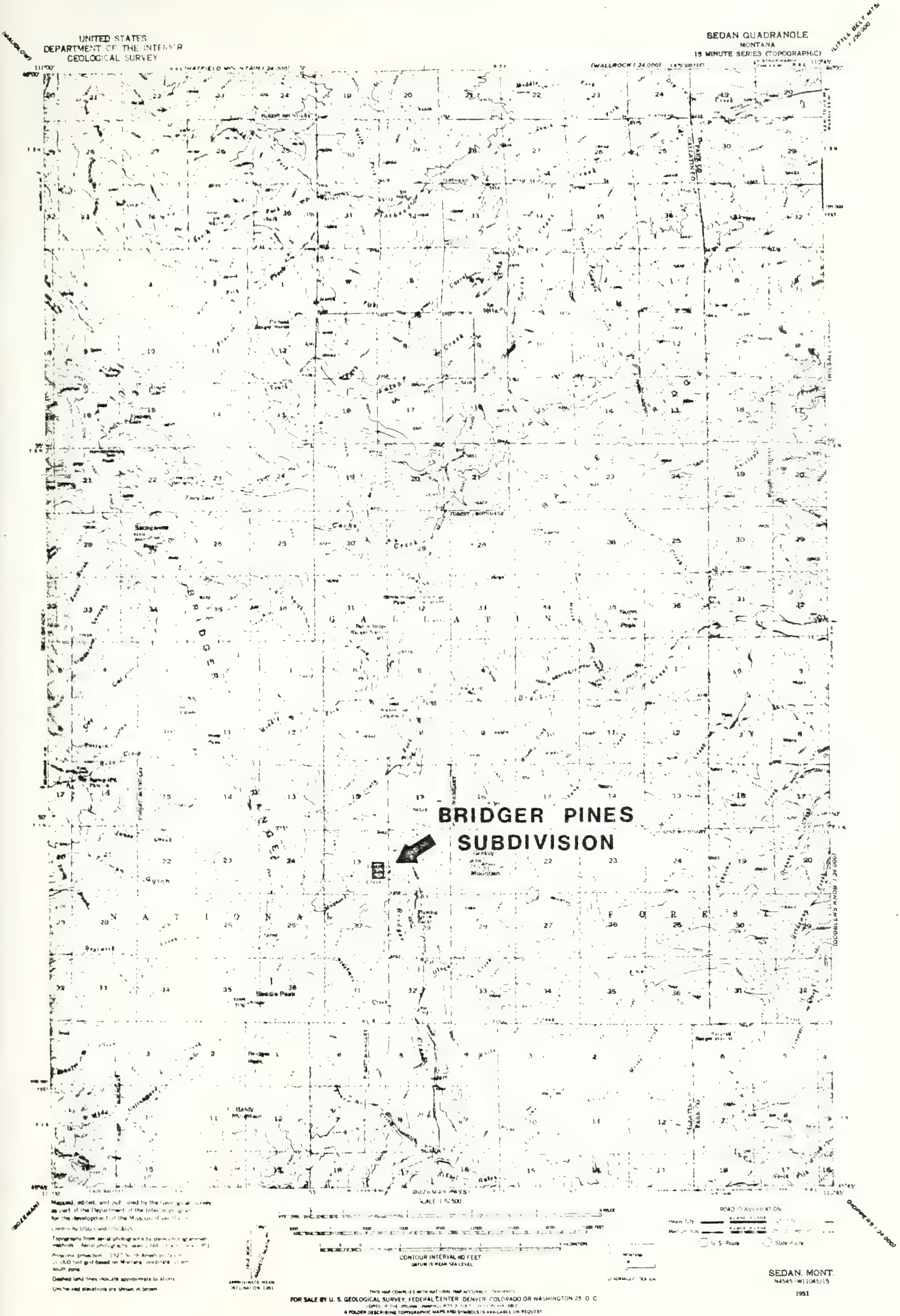
Before preparation of this statement, letters were written to various concerned persons in the Bozeman area requesting their views of the proposed hauling system for the total development. The response was almost entirely negative, and the county health department ruled against the idea. Nevertheless, as was previously mentioned, a system involving truck haulage of sewage could be developed to meet state standards for collection, treatment and disposal of wastewater. It is hopeful that agencies with control of roadway traffic will clear up this controvery during review of this impact statement.

The department does not intend to make decisions relative to the specific alternatives proposed for sewage treatment and disposal for the ultimate development. More specific decisions will be made as development in the area proceeds.

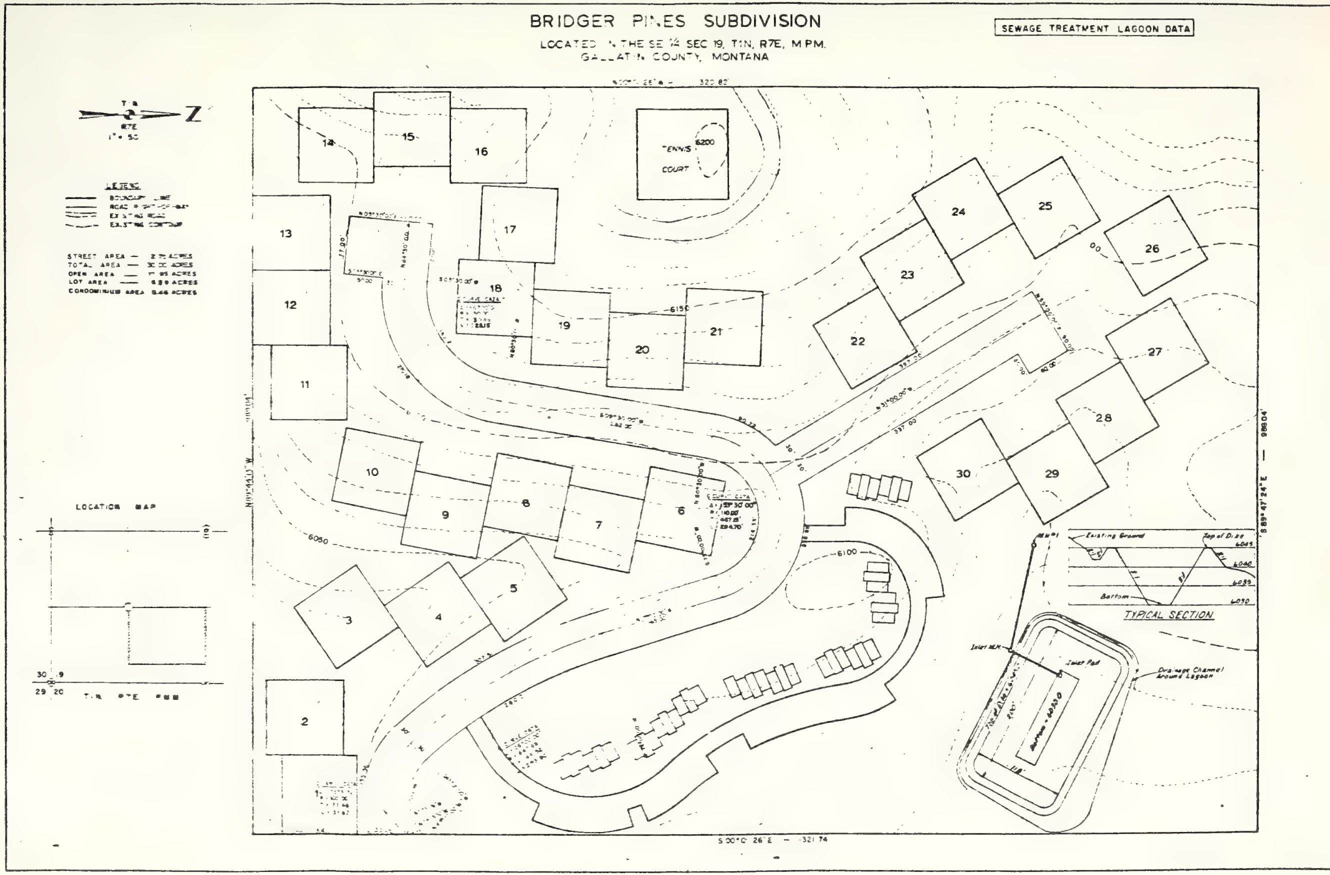
It should be noted that the Bridger Pines Subdivision is in an area zoned for recreation and forestry and planned unit development. Although Bridger Pines was filed before the zoning ordinance went into effect, it appears to meet all requirements of a planned unit development according to the Gallatin County planning office. The stipulation of the recreation and forestry and planned unit development zones are given in Appendix A.

This impact statement prepared by Daniel Vichorek, Technical Writer for the Environmental Sciences Division from information submitted by the developer and Thomas, Dean and Hoskins, Inc., consulting engineers.

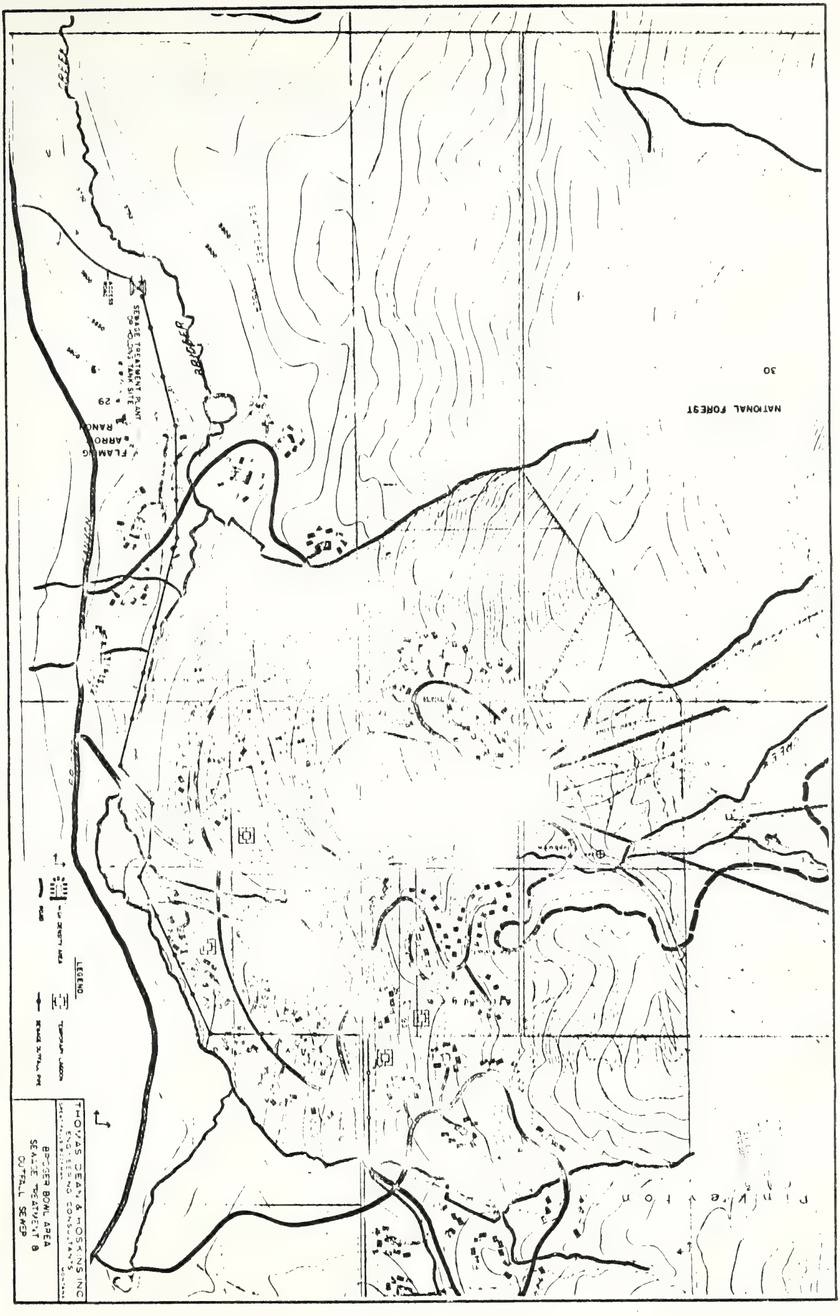
MAP 1


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SEDAN QUADRANGLE
MONTANA
15 MINUTE SERIES (TOPOGRAPHIC)
BRIDGER PINES
SUBDIVISION
BRIDGER
GALLATIN
NATIONAL
FOREST
Grassy Mountain
Saddle Peak
Naya Nuki Peak
Baldy Mountain
Bridger Peak
BOZEMAN PASS
SCALE 1:62500
CONTOUR INTERVAL 80 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
U.S. Route
State Route
APPROXIMATE MEAN DECLINATION 1951
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
SEDAN, MONT.
N4545-W11045/15
1951

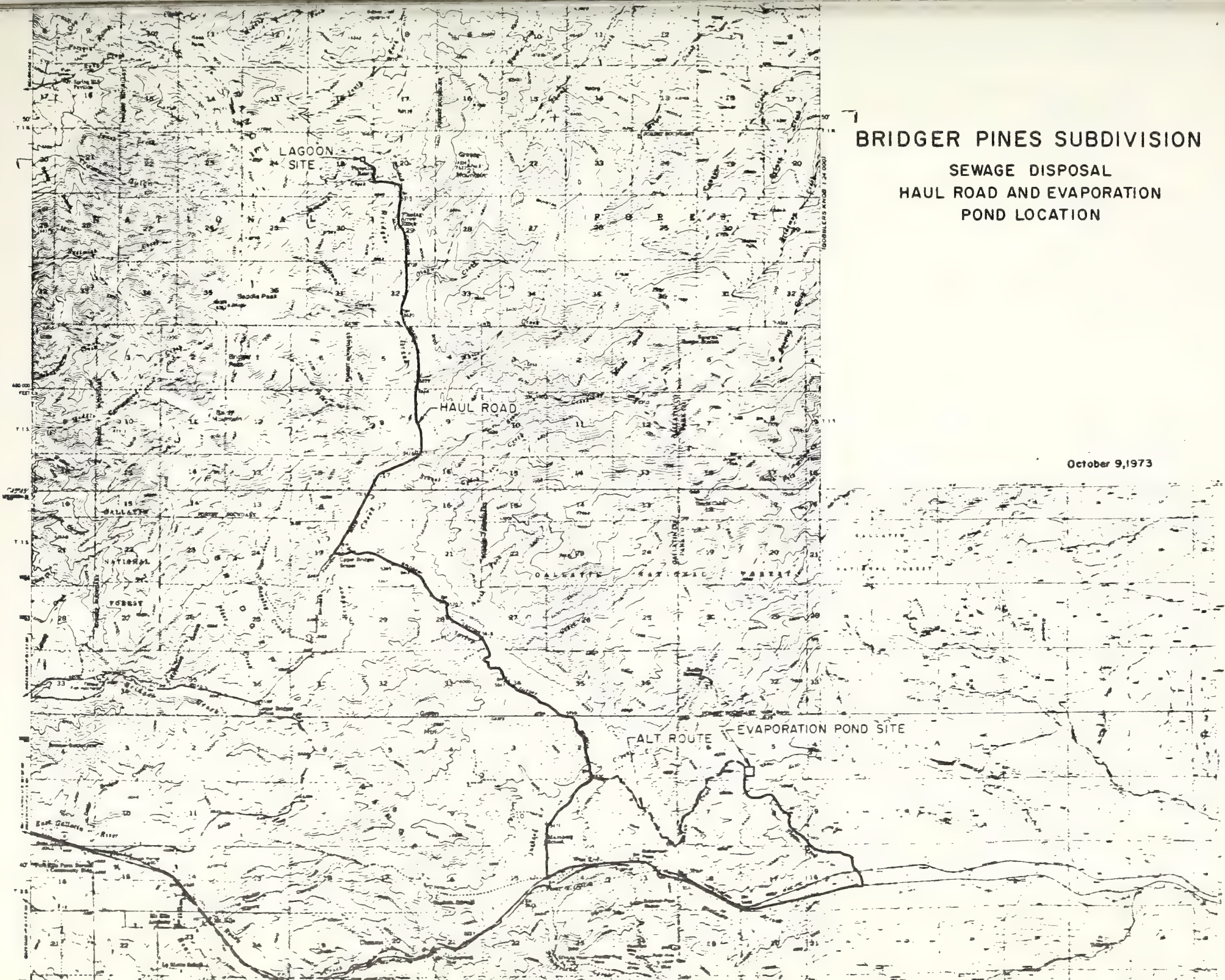
MAP 2


BRIDGER PINES SUBDIVISION
LOCATED IN THE SE ¼ SEC 19, T1N, R7E, M.P.M.
GALLATIN COUNTY, MONTANA
SEWAGE TREATMENT LAGOON DATA
T1N
R7E
1" = 50'
LEGEND
BOUNDARY LINE
ROAD RIGHT-OF-WAY
EXISTING ROAD
EXISTING CONTOUR
STREET AREA
TOTAL AREA
OPEN AREA
LOT AREA
CONDOMINIUM AREA 8.46 ACRES
LOCATION MAP
30
29
20
T1N R7E
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
TENNIS COURT
6200
6150
6100
6050
CURVE DATA
N 60°30'00" E
397.00
S 00°0' 26" E — 321.74
S 89° 47' 24" E — 988.04'
Existing Ground
Top of Dike
Bottom
TYPICAL SECTION
6045
6040
6039
6030
Inlet M.H.
Inlet Pad
Bottom = 6033.0
Drainage Channel Around Lagoon
M.H. #1

MAP 3


THOMAS DEAN & HOSKINS INC
ENGINEERING CONSULTANTS
BRIDGER BOWL AREA
SEWAGE TREATMENT &
OUTFALL SEWER
LEGEND
HIGH DENSITY AREA
ROAD
TEMPORARY LAGOON
SEWAGE OUTFALL PIPE
SEWAGE TREATMENT PLANT OR HOLDING TANK SITE
BRIDGER
CREEK
FLAMING ARROW RANCH
29
30
NATIONAL FOREST
CANYON

MAP



BRIDGER PINES SUBDIVISION

SEWAGE DISPOSAL
HAUL ROAD AND EVAPORATION
POND LOCATION

October 9,1973

APPENDIX A

Portions of the Bridger Canyon Zoning Ordinance relevant to the Bridger Pines Subdivision

✓ SECTION 6 RECREATION AND FORESTRY DISTRICT (RF)

6. 1 Intent: The Gallatin County Board of Commissioners finds that recreation and forestry are leisure time and occupational pursuits important to the economy of Bridger Canyon Because of the high rate of population growth and accompanying residential subdivision development, and because the amount of land suitable for recreation and forestry is limited due to the Canyon's geographical location, climate and topography, this Board finds that there is a need to preserve existing developed and undeveloped recreation and forest lands from unplanned residential, commercial and industrial development by enacting this district

6. 2 Uses Allowed as a Matter of Right: One single-family detached dwelling on each 40-acre parcel Growing and harvesting of timber and other forest products and related activities, including logging and all operations incidental to and connected therewith, road building, truck hauling; crop farming and harvesting; forest stations and lookouts, grazing; riding and hiking trails; stables and corrals;

public and private playgrounds and parks, picnic areas, public utility buildings, structures and uses; structures accessory to any use listed above, signs not over 60 square feet in area appurtenant to any use allowed herein.

6. 3 Uses Permitted After Securing Approval of a Conditional Use Permit: Development and processing of natural resources, including lumber mills, logging camps, mines and mining structures, agriculture processing plants; stands for the sale of products produced on premises; campgrounds; seasonal recreational campsites; golf courses; driving ranges, ski tow facilities; pack stations; airports; guest ranches; commercial snowmobile facilities; structures and uses accessory to the uses listed herein.

6. 4 Similar Uses: Uses which in the opinion of the Board of Commissioners are similar to 6.2 and 6.3 above may be permitted therein.

6. 5 Height, Yard and Area Requirements:

a) Maximum height limit for residential structures shall be thirty-five (35) feet.

b) Parcel width for this district shall not be less than six-hundred and sixty (660) feet. A lesser amount of parcel width may be approved by variance assuming assigned intent of the ordinance is being carried out.

Parcel size shall not be less than forty (40) acres. In the event a parcel is slightly less than the minimum size, a rounding-off of the figure is permitted. Example:

minimum parcel size = 40 acres
actual parcel survey = 37 acres
1-DU would be allowed by rounding
the acreage off to 40 acres.

c) Minimum setback for all buildings and structures shall be twenty-five (25) feet from any property line or fifty (50) feet from the centerline of any public road, whichever is the greater distance.

d) In Ski Base Development, commercial district shall have a maximum area allotment not to exceed five (5) acres.

6. 6 Parking Requirements:

a) Ski tows: Off-street parking shall be required pursuant to the following formula:

$$A = \frac{B \times C}{5000} \quad \text{where:}$$

A = Required Parking
B = Vertical Capacity of Ski Lift facility in feet
C = Capacity of Lift Facility, in persons per hour

For ski lift facilities enlarged subsequent to the effective date of this section, parking under the formula need be provided only for such increased capacity

b) Commercial uses shall provide one (1) off-street parking space for each two hundred (200) square feet of gross floor area.

c) Two (2) off-street parking spaces for each residential unit.

d) Parking required for other uses shall be as set forth by the Gallatin County Zoning Enforcement Agent subject to appeals as outlined herein.

SECTION 8 PLANNED UNIT DEVELOPMENT

8. 1 Intent: This district, to be used in combination with other district, is adopted for the following reasons

a) So that greater opportunities for better housing and recreation may extend to all citizens and residents of this zone.

b) To encourage a more efficient use of land and of public services, or private services in lieu thereof and to reflect changes in the technology of land development so that resulting economies may enure to the benefit of those who need homes

c) To provide a procedure which can relate the type, design, and layout of residential development to the particular demand for housing at the time of development in a manner consistent with the preservation of agricultural and property values within established residential or agricultural areas.

d) To provide an alternative procedure under which land may be developed by transfer of permitted dwelling units to locations suited to such use and retaining his remaining land for agriculture or commit it for common ownerwhip of the owners of said dwelling units.

8. 2 Special Definitions:

a) Common Open Space: A parcel or parcels of land, or an area of water, or a combination of land and water within the site designated for a Planned Unit Development and designated and intended for the use or enjoyment of residents of the Planned Unit Development Common open space may contain complementary structures and improvements as are necessary and appropriate for the benefit and enjoyment of residents of the Planned Unit Development.

b) Landowner: The legal or beneficial owner or owners of all of the land proposed to be included in a Planned Unit Development. The holder of an option or contract to purchase, a lessee having a remaining term of not less than twenty (20) years, or other persons having an enforceable proprietary interest in such land, shall be deemed to be a landowner for the purpose of these provisions

c) Plan: The provisions for development of a Planned Unit Development, including a plat of subdivision, all covenants relating to use, location and bulk of buildings and other structures, intensity of use or density of development, streets, ways and parking facilities. The phrase "provisions of the plan", when used in these provisions, shall mean the written and graphic materials referred to in this definition.

d) Planned Unit Development: An area of land, controlled by a landowner, to be developed as a single entity for a number of dwelling units, the Plan for which may not correspond in lot size, bulk or type of dwelling, density, lot coverage and required open space to the regulations established in the underlying zone

e) Open Space: Land subject to valid restriction against housing development, the maintenance of which in its natural state is necessary for the enhancement of living conditions in Planned Unit Developments.

f) Residential: If permitted in the basic zone, those uses allowed therein and, duplexes, condominiums, lodges, apartments, and motels.

8. 3 Standards for Planned Unit Development:

a) The standards for the following shall be governed by the chart contained in Section 8.4:

1) Parking spaces per unit
2) Minimum amount of undisturbed land or replanted.
3) Maximum coverage of building site by structures.

b) The provisions of the Planned Unit Development section shall be subject to the general provisions of this Ordinance except where different therefrom

8. 4 Standards (1) for Parking, Open Spaces, Building Coverage and Recreation Area shall be as set forth hereunder:

1) Interpolation is permitted by rounding off to the nearest dwelling unit permitted (due to the size of whole parcel). Example:

minimum = 1 DU/20 acres
actual property survey = 389 acres
maximum number of dwelling units permitted
would = 20 units (by rounding off to the nearest unit).

Land Use Intensity as Expressed in Acres per Dwelling Unit	Off-Street Parking required per Dwelling Unit	Open Space Minimum: Percent of Land (2)	Building Space Ratio: Maximum Coverage of Land by Buildings Expressed as a Percentage of Site
80	2.0	99	1
40	2.0	98	1
20	2.0	95	2
10	2.0	90	2
5	2.0	90	3
2	2.0	85	4
1	1.5	80	8
0.5	1.5	75	12
0.3	1.5	70	16

2) Open space is expressed in minimum percentage of land to be left in open space, and does not include: streets, public or private parking, or area covered by buildings. It may include: natural ground, landscaped areas, recreational areas, water surfaces.

8. 5 Computation Required of Developer: The developer shall prepare a computation which indicates how he meets the requirements of Section 8.4. Following is a sample computation for a four hundred acre tract of land designated on the zoning map for PD-20 (one dwelling unit for twenty acres) using the table in Section 8.4:

Permitted	Proposed
Maximum number of dwelling units permitted: 400 ÷ 20 = 20 units	20 units

Off-street parking required if twenty units are developed: 20 x 2 = 40	45 spaces
Open Space required: 95% of 400 acres = 380 acres*	390 acres
Maximum coverage by buildings: 2% of 400 acres = 8 acres**	5 acres

*NOTE: Open Space does not include streets, public or private parking areas, or area covered by any building, garage, carport, or other structure.

**NOTE: Buildings include all land covered by residential buildings, garage building area, carport area, and other enclosed area. All area coverage is computed at ground level.

8. 6 Establishment of Land Use Intensity Factor:

a) The Land Use Intensity Factor for each zone district shall be that shown on the Official Zone Map following the PD symbol.

b) Such factor shall be used in determining the standards specified herein

c) In zones having a permitted dwelling unit density of one unit per twenty (20) acres and lower, a thirty-three and one third (33 1/3) percent increase in allowable densities may be permitted provided such densities are used in areas conforming to adopted General Plan. Interpolation by rounding-off to nearest dwelling unit is permitted.

8. 7 Uses Permitted: The following uses shall be permitted:

a) Any use permitted in tha basic zone classification

b) 1.5 motel units are permitted for each allowable dwelling unit where all of the following conditions apply:

1) There exists at least 2,000 square feet of retail commercial floor area within one mile:

2) Recreation facilities on-site include a swimming pool with a surface area of at least 800 square feet or a game room of comparable size; and

3) No such unit shall have cooking facilities unless said unit including the cooking facility is less than 500 square feet in gross floor area.

c) Multiple (three or more) family dwellings, recreation uses.

d) Buildings and uses accessory to those in Subsection (a), (b), and (c) above.

8. 8 Design Criteria

a) Dwellings: Dwelling design should reflect the following factors:

Where buildings are proposed as part of the development program:

1) Harmonious variations in materials, textures, and colors shall complement and supplement the natural beauty and pleasant environment of the site and the individual unit.

2) Each building site should have ready access to common areas and facilities.

b) Car Circulation and Access: Road design should reflect the following factors:

1) Dwelling areas shall only have limited access to major traffic arteries.

2) Collector roads of ample width and flowing alignment shall feed traffic between the arterial streets and to a network of minor access streets on which most of the homesites are located.

3) Where terrain permits short loop streets and cul-se-sacs should be used for minor streets.

c) Parking: Parking shall reflect the following factors:

1) Occupant and guest car parking should be located so homesites are conveniently served.

2) Parking areas should be designated so that not more than an average of five (5) spaces shall adjoin each other without intervening landscaped areas

d) Walks and Service Circulation: Walks and service circulation should reflect the following factors:

1) Walks should be designated to provide convenient access to recreation, service, parking and other common areas

e) Setbacks: Front, side and rear setback requirements for structures shall be those of the district with which the Planned Unit Development is combined or as established by the approved plan.

f) Open Space Areas: Open space areas should be situated in such a manner as to avoid the crowding together of building uses and parking uses or to enhance visual or recreational pursuits of residents.

8. 9 Legal Requirements: In Planned Unit Development containing area of common or restricted ownership, the subdivision plat, dedication, covenants, and other recorded legal agreements must:

a) Legally create automatic-membership, non-profit homes association or similar instrument;

b) Place title to any common property in the homes association, and limit title to residual lands so that residential use in excess of that permitted in this ordinance may not be made theron.

c) Restrict title to required open space (whether held in common or not) so that residential buildings or uses detrimental to the residential portion of the Planned Unit Development may not be constructed or conducted thereon.

d) Appropriately and permanently limit the uses of the common property, open space, and residual agricultural lands.

e) Give each lot owner the right to use and enjoyment of the common property;

f) Place responsibility or operation and maintenance of the common property in the homes association;

g) Place an association charge on each lot in a manner which will:

1) Assure sufficient funds, such charges to be a lien on the property; and

2) Provide adequate safeguards for the lot owners against undesirable high charges

h) Restrict the use of the property to the uses permitted by the PD approval.

Where any of the foregoing are not applicable, the developer may substitute alternative suggestions.

All legal documents required under this section shall not be acceptable until approved as to the legal form and effect by the County Attorney when required by the County Commission; all deed restrictions and association rules and regulations shall be enforceable by the County of Gallatin as well as by the association.

8.10 Staged Development: If the sequence of construction of various portions of the development is to occur in stages, then the open spaces and the recreational facilities proposed for the entire development shall be developed, or committed thereto, in proportion to the number of dwelling units constructed. At no time during the construction of the project shall the number of constructed dwelling units exceed the overall density per acre established by the Land Use Intensity Factor.

8.11 Procedure for Approval:

a) The procedure for obtaining approval of the Planned Unit Development shall be governed by the provisions of the county subdivision law where applicable.

b) In addition to any information required by the subdivision law, the applicant shall furnish the following information:

1) The types of residences to be constructed;

2) Proposed staging of construction, by units, if the Planned Unit Development is to be constructed in stages;

3) Location and proposed uses of open spaces;

4) Legal requirements and documents required by Section 8.9.

5) All information necessary to determine whether the requirements of Section 8.3 and 8.4 for the following are satisfied:

a) Building Coverage Ratio
b) Parking Ratio
c) Open Space Ratio

6) Location and layout of parking areas;

7) The location of all existing vegetation and geological features to be retained

c) The granting, conditional granting or denying of a Planned Unit Development Plan shall be handled as a Conditional Use Permit.

628.168
H2e

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

STATE DOCUMENTS

FEB 18 1975

February 14, 1975

Honorable Thomas Judge, Governor, State of Montana, Helena
Montana Department of Fish and Game, Helena
Environmental Quality Council, Helena
Bill Schneider, Montana Outdoors, Department of Fish and Game, Helena
Department of Natural Resources, Helena
Department of State Lands, Helena
Bureau of Land Management, Federal Building, Billings
Dan MacIntyre, Custer National Forest, Box 2556, Billings
Wayne Yost, Soil Conservation Service, 130 South Pratten, Columbus
Rodney Fink, Sanitarian, Courthouse, Columbus
Environmental Information Center, Box 12, Helena
Tina Torgrimson, Environmental Information Center, Box 12, Helena
Floyd Sharrock, Department of Anthropology, University of Montana, Missoula
Trout Unlimited, Box 1534, Billings
The Billings Gazette, Billings
Berkley Dowd, Fishtail
Walter Keogh, Nye
Department of Intergovernmental Relations, Division of Planning, Helena
Leslie Zuck, 1304 16th Street West, Billings
Rick Graetz, Box 894, Helena
Mary Lee Reese, 29 South Alta, Helena
Northern Rockies Action Group, #9 Placer, Helena
Student Environmental Research Center, Room 212 Venture Center, University of Montana, Missoula
Montana State Library, Helena
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Billings Public Library, Billings
Environmental Studies Department, University of Montana, Missoula
Consumer Advocate, Governor's Office, Helena
Paul T. Richards, 902 North Park, Helena
Dan Smith, Citizens Alert for Guided Growth, 812 South Eighth, Bozeman
C. W. Gonder, 823 East Call Street, Livingston

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

Mrs. Winifred Lucky, 420 South Sixth Street, Livingston
Mrs. Vel Jansen, 430 South Sixth, Livingston
Mr. Oscar Harmon, 1804 Lake Elmo Road, Billings
Mr. Alf Hulteng, Billings Branch Office, Box 20296, Billings
Board of County Commissioners, Courthouse, Columbus
City-County Planning Board, Courthouse, Columbus
Mr. John Schillinger, Microbiology Department, Montana State University, Bozeman

Attached is a draft environmental impact statement for the Buffalo Jump Ranch subdivision in Stillwater County. Your comments should be received within 30 days of the above date.

Sincerely,

Daniel Vichorek dgm

Daniel Vichorek
Technical Writer
Environmental Sciences Division

DV:sh
Attachment
cc: Mr. Wake
Mr. Carmody

MONTANA DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

February 14, 1975

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE BUFFALO JUMP RANCH SUBDIVISION, STILLWATER COUNTY, MONTANA

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5009; and the act controlling water pollution, Section 69-4801 through 69-4827, the following draft environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Buffalo Jump Ranch Subdivision in Stillwater County for which a request has been received to remove the sanitary restriction which has been imposed.

Location

As shown on the attached map, the subdivision is located approximately one mile south of Nye in the Stillwater drainage in Section 6 and 7, Township 5 South, Range 16 East and Section 1 and 2, Township 5 South, Range 15 East.

Description of the Proposed Project

This property consists of approximately 874 acres which have already been subdivided into 77 lots ranging from 10 to 80 acres. The lots average 11.28 acres. Under the new proposal, each of the lots would be divided into two or three smaller lots averaging 5.8 acres, thus doubling the potential population of the development.

The developer has asked specifically for permission to divide one lot, lot 42 of the existing subdivision, into four lots, but legal counsel for this department advises that the impacts of the entire development should be considered in this impact statement.

It appears that this area is generally unsuitable for subdivision, although it was subdivided earlier into lots large enough to escape the authority of this department.

Problems with the area include the following:

1. High groundwater. Data submitted by the developer showed "moisture" above four feet in each of four test holes sunk on lot 42. Whether this condition is general throughout the property is currently unknown and extensive testing would be required to find out.

2. Soils with moderate to severe limitations for subsurface drainfields. Septic tank limitations on the property include high bedrock, steep slopes, flood hazard, and poor permeability. Extensive on-site testing would be required to determine if suitable sites for sewage disposal do exist.

3. No potable water supply. Water would have to be hauled from approved supplies by truck and placed in cisterns. No arrangements for this have been submitted to the department.

The development also would have a serious impact on wildlife, according to the State Department of Fish and Game. A spokesman for that department said that the subdivision would eliminate an important piece of mule deer habitat and eventually the deer themselves. "Unfortunately for wildlife, this tract of land is located in a key wintering area for the Stillwater mule deer herd," according to the Fish and Game Department. The department's wildlife biologists did not agree with the developer's statement that the winter range on the property would not be destroyed because only summer homes would be built there.

Power would be supplied to the development through overhead lines that supply the nearby Mouat Mine.

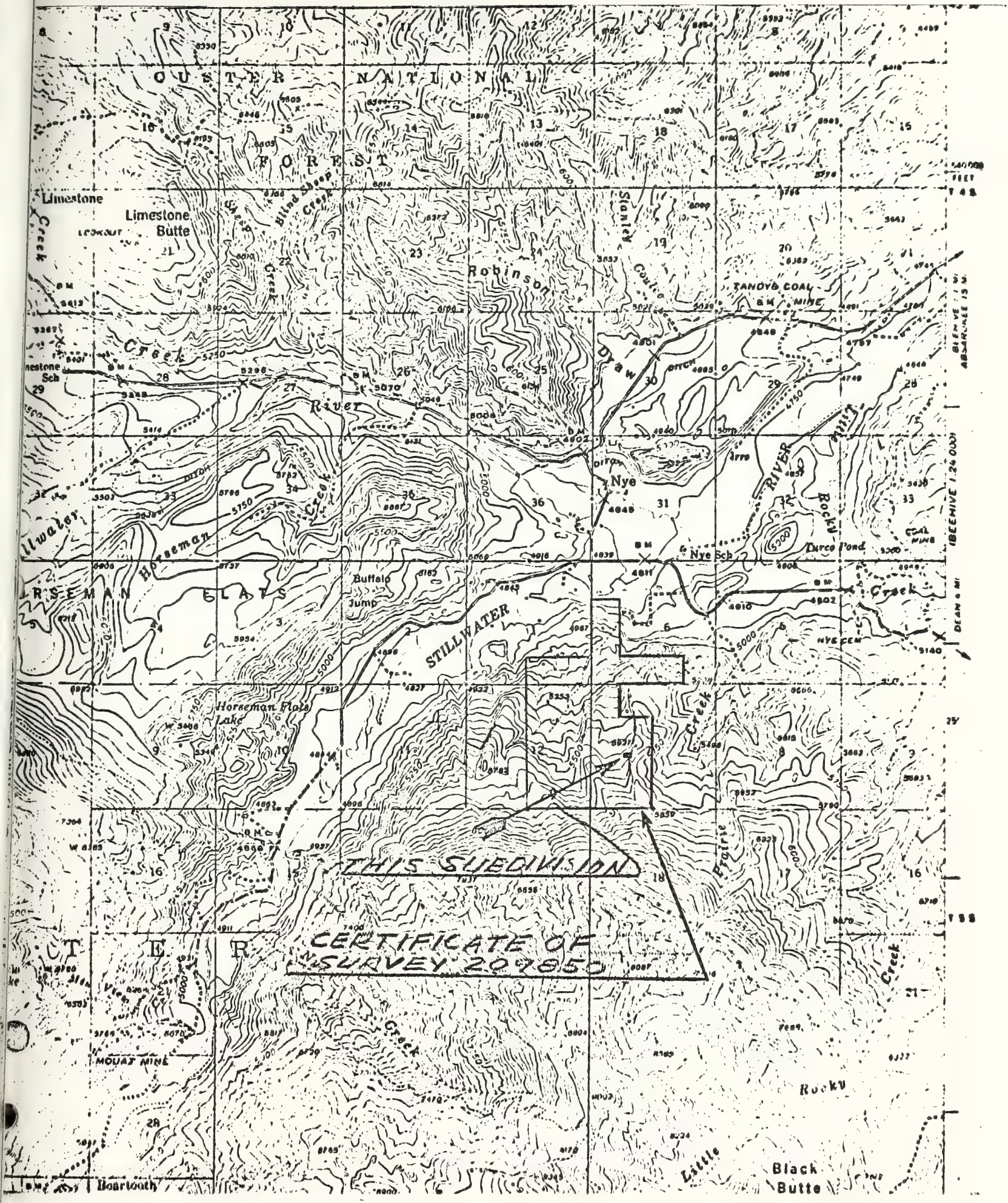
The Department of Anthropology of the University of Montana in Missoula offers the following comments with respect to the buffalo jump situated just west of the subdivision:

> The site is the Kenough Buffalo Jump (24 ST 401). There is suggestive evidence that the site is attributable to the Crow Indians (ms. on file UM Statewide Archaeological Survey files).
>
> It is my opinion that the subdivision (an additional 154 families) that close to the bison jump is apt to have adverse impact on the site because of the greater numbers of people and increased accessibility to the site.
>
> Because of the probable adverse impact, I recommend, at minimum photographing and mapping the site, and test excavation as precautionary measures.

Conclusion

In view of the apparent limitation of this site for subdivision, this department cannot look favorably upon such development, unless further testing removes concern over the sanitary problems that appear inevitable if development were to proceed.

This draft environmental impact statement has been prepared by Daniel Vichorek, Technical Writer for the Environmental Sciences Division, Montana Department of Health and Environmental Sciences, utilizing information presented by the developer, Department of Fish and Game, U. S. Soil Conservation Service and the Department of Anthropology of the University of Montana.


CUSTER NATIONAL FOREST
Limestone Creek
Limestone Butte
Lookout
Sheep Creek
Blind Sheep Creek
Stanley Coulee
Robinson Draw
TANDYS COAL MINE
Creek
River
Ditch
Nye
Nye Sch
RIVER
Rocky
Turco Pond
COAL MINE
Stillwater
Horseman Creek
HORSEMAN FLATS
Buffalo Jump
STILLWATER
Creek
NYE CEM
Horseman Flats Lake
Prairie Creek
THIS SUBDIVISION
CERTIFICATE OF SURVEY 20785D
MOUAT MINE
Creek
Rocky
Little
Black Butte
Boartooth
T 4 S
T 5 S
BEEHIVE 1:24 000

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628.168
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STATE DOCUMENTS

SEP 18 1973

State of Montana

State Department of Health
AND ENVIRONMENTAL SCIENCES
HELENA, MONTANA

JOHN S. ANDERSON, M.D.
EXECUTIVE OFFICER

Kalispell Regional Office
Box 1031
Kalispell, MT 59901

September 12, 1973

MR. G.G. Ostrom, Rt. 2, Kalispell, MT 59901
Mr. D.K. Marquardt, P.E., 809 1st Ave. East, Kalispell, MT 59901
Mr. Fletcher Newby, Montana Environmental Quality Council, Helena, MT 59601
Board of County Commissioners, Flathead County Courthouse, Kalispell, MT 59901
Montana Fish & Game Department, Helena, MT 59601
Flathead Areawide Planning Organization, 3 Ford Bldg., Kalispell, MT 59901
B.C. McIntyre, M.D., County Health Officer, Box 427, Whitefish, M 59937
Les Espeland, R.S., Flathead County Sanitarian, Box 919, Kalispell, MT 59901
Water Quality Bureau, State Department of Health & Environmental Sciences, Helena, MT 59601
Montana State Department of Intergovernmental Relations, Division of Planning and Economic Development, Helena, MT 59601
Mr. Ben Wake, Environmental Sciences Division, Helena, MT 59601
Montana State Library, 930 E. Lyndale Ave., Helena, MT 59601
Montana State Highway Commission, Kalispell, MT 59901
Mr. Wayne Herman, President, Flathead Wildlife Inc., Box 4, Kalispell, MT 59901
Mr. Ken Kruger, West Valley School District, Rt. 3, Kalispell, MT 59901
Mr. C. Harvey, Rural Fire Dept., Rt. 3, Kalispell, MT 59901

Gentelmen:

The enclosed draft Environmental Impact Statement has been prepared for the DEER MEADOWS SUBDIVISION near Kalispell in Flathead County, Montana.

Under Montana law, a person or agency has thirty days to submit comments and/or supply new supplimentary information. An additional fifteen days may be granted upon specific request to an individual or agency. Comments received in response to this draft statement will be summarized and included in the Final Environmental Impact Statement.

Sincerely,

Wilbur O. Aikin, P.E.
Public Health Engineer
Environmental Sciences Division

WOA/kmh
Enclosure

A DRAFT
ENVIRONMENTAL IMPACT STATEMENT
for
DEER MEADOWS
A Subdivision in Flathead County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3), the act controlling both public and private water supply and sewage disposal for subdivision, Section 69-5001 to 69-5005, and the act to control water pollution, Section 69-4801 to 4827, the following Draft Environmental Impact Statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Deer Meadows Subdivision, located west of Kalispell in Flathead County, Montana.

LOCATION AND SIZE

The rural subdivision proposal which is under review in this statement consists of one hundred and thirty-four (134) contiguous lots to be platted in a large L-shaped block of 108 acres. Twelve acres (one-ninth of the subdivision) would be dedicated to the county for parks and playground purposes and an additional 7 acres would be required to provide internal access roads. The complete plat will occupy the greater part of the SE¼ of Section 32, T.29N., R.22W., M.P.M.

All lots are of a reasonable uniform 20,000 to 25,000 square foot size. The only exception to this is a group of ten or twelve lots proposed entirely upon a sidehill location. These larger lots are roughly 3/4 acres or more in size, while one outsize back lot plats out at a full 2.5 acres.

Geographically the development site is six miles west of Kalispell along State Route 424 (Three-Mile Drive). The West Valley School is the nearest recognizable landmark, being less than a mile to the north.

DESCRIPTION OF PROPOSED ACTION

The developmental concepts for all 134 lots include a community water system and individual sewer systems by means of septic tank and absorption field. Solid waste would be disposed of to the Flathead County Landfill Site. Approval of these concepts through plan and specification review is the essence of the State Department of Health regulatory authority.

TOPOGRAPHY AND GROUND WATER

This project area is on the very margin of the wooded foothill country west of Kalispell. Two distinct topographical type areas are represented in this particular area.

(1). The north and east one-half is mostly occupied by the toe and face of a glacial till terrace. Interpolating from the detailed topographical map submitted with the plans, this face generally slopes eighteen percent plus or minus two percent locally, with the very steepest part a 35 percent incline included as part of the large 2.5 acre lot. No streams, or creeks bisect this terrain. Ground water considerations can be assessed to be without problem here. Instead drainfield locations will be troublesome on many lots.

(2). The south and west half is dominated by a large, slightly depressed upland meadow which grades into the toe and slope of another, more westerly terrace, which bounds the project area on the west side. This natural basin or park is clear of trees and appears to be remnant of an old perched water table now reduced (at least for 1973) to an elevation reasonably below ground datum. A small stream (Whitetail Creek) flows into the basin from the west and, when running full such as during spring run-off,[1] traverses across the park recharging into the natural sink of the basin as it goes. During much of the year surface flow is low to virtually non-existant with the only sign of water being a down-grade spring site in the northwest corner of the subdivision. This spring probably rides on the ground water level in the basin.

ROADS AND PARKS

The broad uniform topography has made it possible to design access roads into the subdivision within the grade limitations of Flathead County. No more than normal foothill road disruption should be anticipated, and once "on top" all roads are comparatively flat. Two Whitetail Creek stream crossings are indicated, both to be supplied with 24 inch culverts.

The matter of dedicating a required percentage of the subdivision for county park lands was achieved in conjunction with the problem of the locally near surface ground water table found in parts of the basin area. By using the test hole data to determine the existing ground water table (as of June, 1973) these areas which might jeopardize drain fields are to be set aside as dedicated parks. The only question which might occur is in establishing whether or not the true boundaries have been completely defined. Six test holes within approximately 13 acres were used to justify this design and it would appear to be reasonably accurate and adequate, at least for conditions existing during 1973, an admittedly dry year.

These lower open areas are aesthetically very pleasing and dedication for park use is a very commendable approach.

MAJOR SURFACE DISRUPTIONS

Except for the terrace faces, the installation of residences, whether they be framed homes or mobile homes, should not be environmentally difficult. The

1. The drainage basin for Whitetail Creek is fairly large, and although there is no record of flash flooding in the area, the prospect does exist simply because there is no well defined cannel to accept an instantaneous flow out of the mountains

road network should also be well below average as to disruption, considering that this is a mountain subdivision.

There are therefore, only two surface disruption factors that could be troublesome:

1. No Covenants or restrictions accompany the submittal. Private capriciousness on the part of individual lot holders can be expected to run the full spectrum of possible uses.

2. The submittal includes a proposal to reroute the poorly defined channel of Whitetail Creek into a new path out of the subdivision. The diversion structure would put all surface flow into the dedicated park area, and theoretically the new stream would not infringe on any of the platted lots. At one point along this new channel it is also proposed that an excavation be made (roughly 200 ft. by 100 ft.) below the ground water table thus creating a man-made pond. Except for the fact that the diversion must be made, the plan is somewhat nebulous since surface and ground water volumes are not known.

SOILS SYSTEMS

Information on the soils system is taken from the "Soil Survey: Upper Flathead Valley Area, Montana". Virtually all soils noted are from the Whitefish Series, a deep light-colored silty type developed from colcareous medium-textured glacial till and containing a large percentage of rounded gravel cobbles or large stones.

Soil Type	Agric. Class	No. of Acres	Slope of Ground	Septic Tank Limitations	Topographic Type-Area
Fine Sandy Loam	II	5	0-7%	Moderate	Toe of Terrace
Cobbly Silty Loam	V	18	0-7%	Moderate	Terrace Park Area
Cobbly Silty Loam	VI	27	7-12%	Severe by reason of unfavorable slope	Terrace Face Area
Cobbly Silty Loam	VI	52	20% and over	Severe by reason of unfavorable slope	Terrace Face Area
Gravelly Silty Loam	III	5	0-7%	Moderate	Terrace Park Area

From this chart it can be seen that 79 acres (73%)[2] of the subdivision is in the severe category (with respect to on-site sewage disposal fields) because of

[2] This figure was arrived at by using S.C.S. mapping. A thorough field examination by this office suggests the figure is probably too high because of the subdivision design. A rough estimate from this perspective says that 35 to 40% of the lots would probably be partly or completely effected.

slope conditions. On-site sewage disposal fields with slopes greater than 10% have severe limitations because unfiltered effluent may surface on the downhill side. Percolation field results submitted with the proposal also indicates that average rate on the terrace slope to be slightly in excess of 20 minutes to the inch. This is not an encouraging figure, even on flat ground, because it reinforces the suggestion that effluent from absorption trenches would be very likely to surface. Deeper level seepage pits would be a safer method of choice if public health problems were considered to be the primary consideration. Yet seepage pit methods are not a happy choice since this method recharges all effluent into the subsurface and it has been department policy to disapprove such ideas whenever possible.

However, because the development will have a community water system and because there does not appear to be either a bed rock problem or a groundwater problem on the various terrace faces this approach must be considered as a reasonable alternative on all ground with slopes over seven percent. Additional test holes in the project areas probably would be needed to justify utilizing this approach.

Drainfields in areas of less-than-seven-percent slope would be of the standard absorption field design, provided they did not violate ground water spring requirements.

This policy, if approved, would require concurrance by the Flathead County Health Department office.

This stoniness and slope also has caused severe limitation to be listed with respect to the utilization of these areas for intensive play areas, lawns and landscaping, roads and residential building sites. Whenever this stoniness and high slope does not occur, these categories show only moderate to slight limitations.

WATER SUPPLY

The feasibility of a satisfactory water supply, as required by newly effective H.B. 465, has not yet been demonstrated. According to the Bureau of Mines and Geology there are two comparatively shallow wells (40-50 ft.) and one deep well (150 ft. at West Valley School) within one mile of the subdivision. However, the subsurface water potential in the foothills is considerably different than that in the plains area where these wells were developed. The question of a satisfactory source for this proposed community system is still open for resolution by the developer.

PRIOR USE

The two topographic type areas are reflected in two vegetative type areas. The relatively flat open upland meadows (15-25 acres) are grassy and appear to have been used in the past for grazing, pasturing and possibly minor cultivation. The balance of the subdivision is a wooded mixed coniferous forest which has been selectively logged sometime in the past.

Wildlife is said to be plentiful, especially during the winter, with deer, grouse and pheasant the common occupants

OWNERSHIP

This ground is now represented as being under a single "trust" ownership. Ten other individuals, corporation or partnership own land contingent to this block. Any further plans for this area are unknown although there is a new standard gravel road access now being completed in that area directly south of this development.

ALTERNATIVES

Because the data submitted with this proposal does not yet meet all of the criteria required by (Regulation) MAC16-2.14(10)-S14340 and by H.B. 465, the full range of options remain open to this department.

1. Approve as submitted.
2. Disapprove until all requirements and regulations are met or until lots posing environmental problems are removed from the plat.

In conjunction with this, it should be noted that the Flathead Areawide Planning Organization has accepted and approved the preliminary plat application for this subdivision.

IMPACT

The impact on community services will be significant. The influx of 148 families to the area will stress existing services and necessitate expansion of these services to accomodate the greater demand.

The roads in the subdivision will be dedicated to the County and therefore additional maintenance will be necessary. There are approximately 2.3 miles of road that will require maintenance. Nor particular problems are anticipated in this respect.

The solid wastes contributed by the subdivision will be disposed of at the County Landfill. The method of collection of these wastes is uncertain at this time. It may be that the land owners association will contract a private firm to collect the wastes and deliver them to the landfill site. This is seen as the

most desirable solution. An alternate solution would be for the county to establish a disposal site nearby with adequate refuse containers. Location of such a site is seen as an aesthetic problem and the first alternative is seen as being more desirable.

Fire protection would be provided by the West Valley Volunteer Fire District. It is uncertain whether or not the existing equipment can meet the demand of the subdivision. There will be an increased need for police protection. This will probably require additional personnel and equipment. The increased tax base will provide funds for many of these services.[3]

Impacts on natural features have already been indicated as significant factors in the subject summaries. Aesthetic impacts are also somewhat mitigated by the fact that all lots have wooded areas available to provide both privacy and cultivated beauty if used properly.

ADVERSE IMPACT

Perhaps the greatest impact will be on educational facilities. Assuming that 85% of the families have 2 school-age children, the increase in the number of students would be 250 or 21 students per class. West Valley School would be the most greatly affected as a significant expansion would be necessary. The impact on busing would be less significant because of the proximity of the subdivision to the school. The impact on the educational facilities of the Kalispell School District will not be as pronounced because of the small number of students in proportion to the school body. An increase in the busing schedules would be necessary as an additional 100 students would require an extra bus on the route. Whatever the necessary adjustments are, the impact on education and busing will be felt the most.

Unusually adverse impacts to winter wildlife range may also occur, however this point has not yet been offered by a qualified individual or agency. Information on this matter has come to this office as isolated bits of data by lay people who claim to be extremely knowledgeable about the area.

3. This estimation was made by the engineering agency representing the developer.

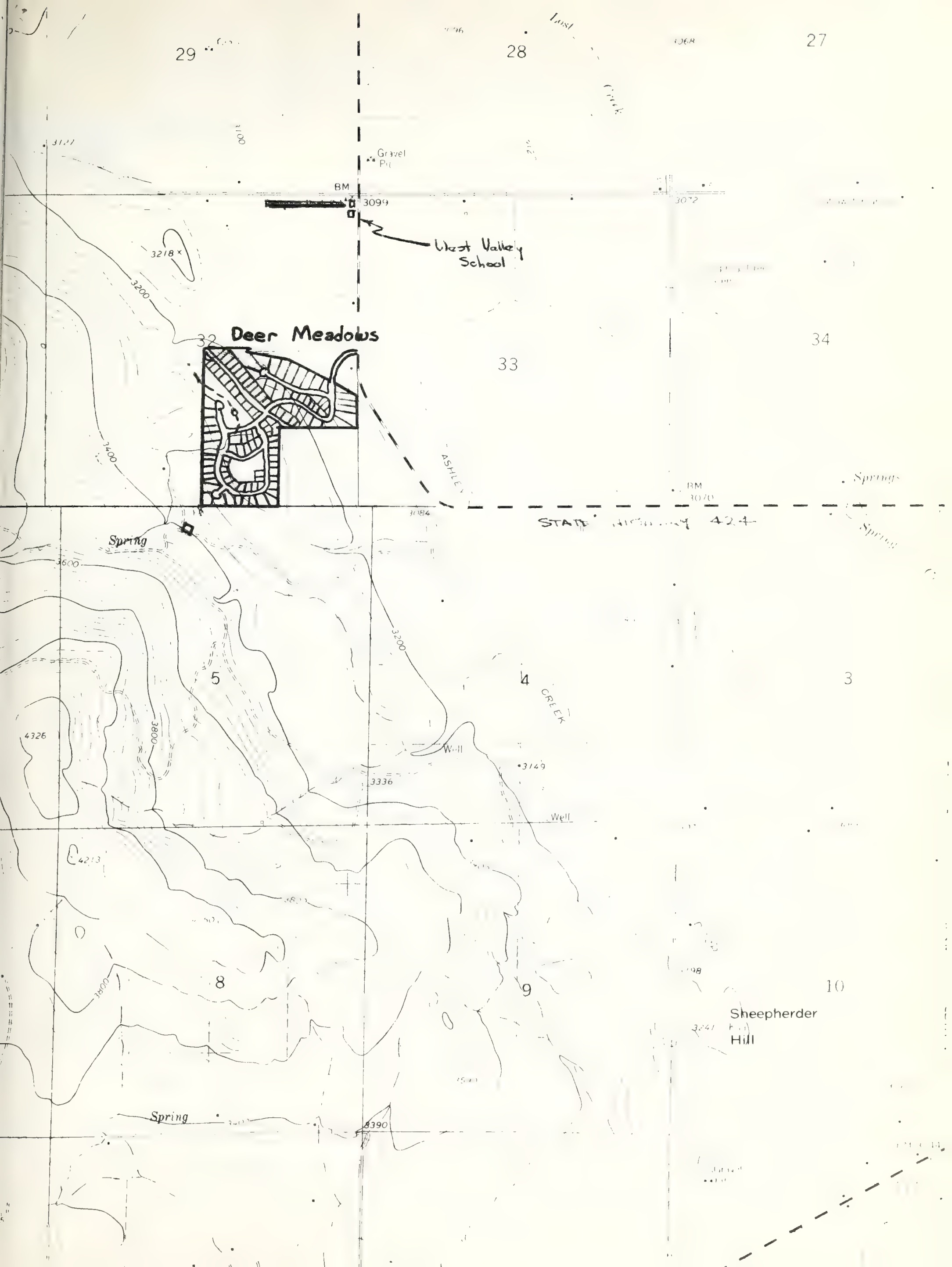
LAND MANAGEMENT COMPARISONS AND THE COMMITTMENT OF RESOURCES

A large portion of a full quarter section would be committed to comparatively intensive land useage from significant human impact and a multiplicity of ownerships. Comparable long term block management of the area would probably be that devoted to tree farming and wildlife habitat. Agricultural concepts other than grazing are not reasonably possible.

STATEMENT SOURCES

This statement was prepared by Wilbur O. Aikin, BSGE, Montana Tech, a registered professional engineer and economic geologist with 22 years of experience in a variety of engineering, exploration production supervisory and now regulatory positions.

Data used in the preparation of this statement was accrued from information submitted to this office by Eric Teittinen, a sanitary engineer in the employ of the Marquardt Engineering Firm of Kalispell. Some of the included comments were extracted directly from the Montana Regulatory Form E.S.91 which accompanied the platted application. An on-site field inspection was made prior to completion of this statement.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Double Arrow
Ranch Subdivision
Phase II

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D
DIRECTOR

STATE DOCUMENTS

MAY 29 1973

May 24, 1973

Board of County Commissioners, Courthouse, Missoula
City-County Planning Board, Courthouse, Missoula
City-County Health Department, Courthouse Annex, Missoula
Mr. Fletcher Newby, Environmental Quality Council, Helena
Montana Fish and Game Department, Helena
Department of Intergovernmental Relations, Division of Planning and Economic Development
Dave Nunnallee, Branch Office, Box 1031, Kalispell
The Missoulian, Missoula
Mr. Larry Jakub, Department of Natural Resources and Conservation, Helena
U. S. Forest Service District Office, Seeley Lake
Ainsworth & Associates, Box 298, Missoula
Life of Montana, Professional Building, Bozeman
Geo-Associates, Inc. 713 South Third Street West, Missoula
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena

Gentlemen:

The enclosed environmental impact statement has been prepared for Double Arrow Ranch Phase II, a proposed subdivision in Missoula County. This is submitted for your review and comments.

Under Montana law, a person or agency has thirty days to submit comments and/or supply additional information. An additional fifteen days may be granted upon specific request to an individual or agency. If you have any comments regarding the environmental impact statement, please submit them in triplicate to this office.

After thirty days, the project will be reviewed in light of comments received that are applicable under Montana law.

Sincerely yours,

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:AJG:sh

Enc.

cc: Ben Wake

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

May 24, 1973

DRAFT ENVIRONMENTAL IMPACT STATEMENT
for
DOUBLE ARROW RANCH SUBDIVISION PHASE II

Pursuant to the Montana environmental policy act, Section 69-6504 (b) (3); and the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 5005; and the act to control water pollution, Section 69-4801 through 4827, the following statement was prepared by the Environmental Sciences Division of the State Department of Health and Environmental Sciences, concerning the Double Arrow Ranch Subdivision Phase II for which a request has been received for removal of the sanitary restrictions. Under state law, this department must remove the sanitary restrictions before water supply or sewage disposal facilities can be installed on any subdivision with any lot smaller than five acres.

Location

This property is located about one-half mile southeast of the community of Seeley Lake.

Description of proposed action

The developers would divide 225 acres into 105 lots. The owner of the land is Life of Montana, a Bozeman organization, represented by Ainsworth and Associates of Missoula, professional land surveyors and land planners.

The area apparently would be developed primarily for summer home sites. Stan Cohen of Geo-Associates, Inc. of Missoula said in his evaluation for the developer that the land probably would be used for summer homes because of its distance from the highway and the roughness of the terrain.

Water supply would be from the Seeley Lake municipal system. Plans and specifications of the proposed public water supply system must be reviewed and approved by the Department of Health and Environmental Sciences before the sanitary restriction for this subdivision can be removed.

Sewage would be disposed of through individual septic tanks.

Gravel surfaced roads will be constructed to furnish access to the lots. No cut and fill is expected to be necessary for road construction, except for roadside ditches to provide drainage. Only one road will be necessary across Morrell Creek. The crossing would be via a culvert or bridge.

Existing utility lines skirt the property on the west, and overhead lines will be installed on the property to provide telephone and electrical service.

Topography and soils

The land is generally flat lying. Morrell Creek passes north to south through the property and has created a 12 to 20 foot deep cut.

The soils are composed mostly of glacial material with poorly developed profiles. Preliminary inspection by the Missoula City-County Health Department indicated the soil permeability is adequate for septic tank use. A series of 25 test holes on the property indicated percolation rates vary between six and fourteen minutes per inch, which should be adequate.

Inspectors from the local health department found one boggy area on the property. No septic tank drainfield will be allowed within 100 feet of the bog. The developer has agreed to eliminate several lots near the bog and to assure that no drainfields are installed within 100 feet of Morrell Creek.

The land is heavily timbered.

Impact of the proposed development

Pollution of ground and surface water should be avoidable if drainfields are kept at least 100 feet from the surface water and if the required four-foot separation is maintained between the bottom of the drainfields and the highest level of the groundwater table at each site. There will be a loss of open space. There may be some erosion caused by road building and the leveling of homesites. Cats, dogs and people probably will cause small animals and whatever larger wildlife now using the site to go elsewhere.

There is no information currently available on the use of the area by wildlife. No burning of solid waste will be allowed on the premise as a commercial trash hauler is available to serve the site.

Alternatives available to this department

1. Approve the development as requested.
2. Disapprove the development.

If the development was disapproved, the developer could escape state jurisdiction by increasing the lot size to over five acres.

Short-term/Long-term comparisons

The major question here is whether the construction of summer homes can be justified on an environmental basis. In the face of an increasing lumber shortage, it seems ill advised for society to allow some affluent persons to build second homes while poorer persons cannot afford the materials to build a decent first home.

Whatever agricultural value this land currently has will be lost if the development proceeds. Further, it would appear from the map that the area probably is used by game ranging in from the adjoining state forest.

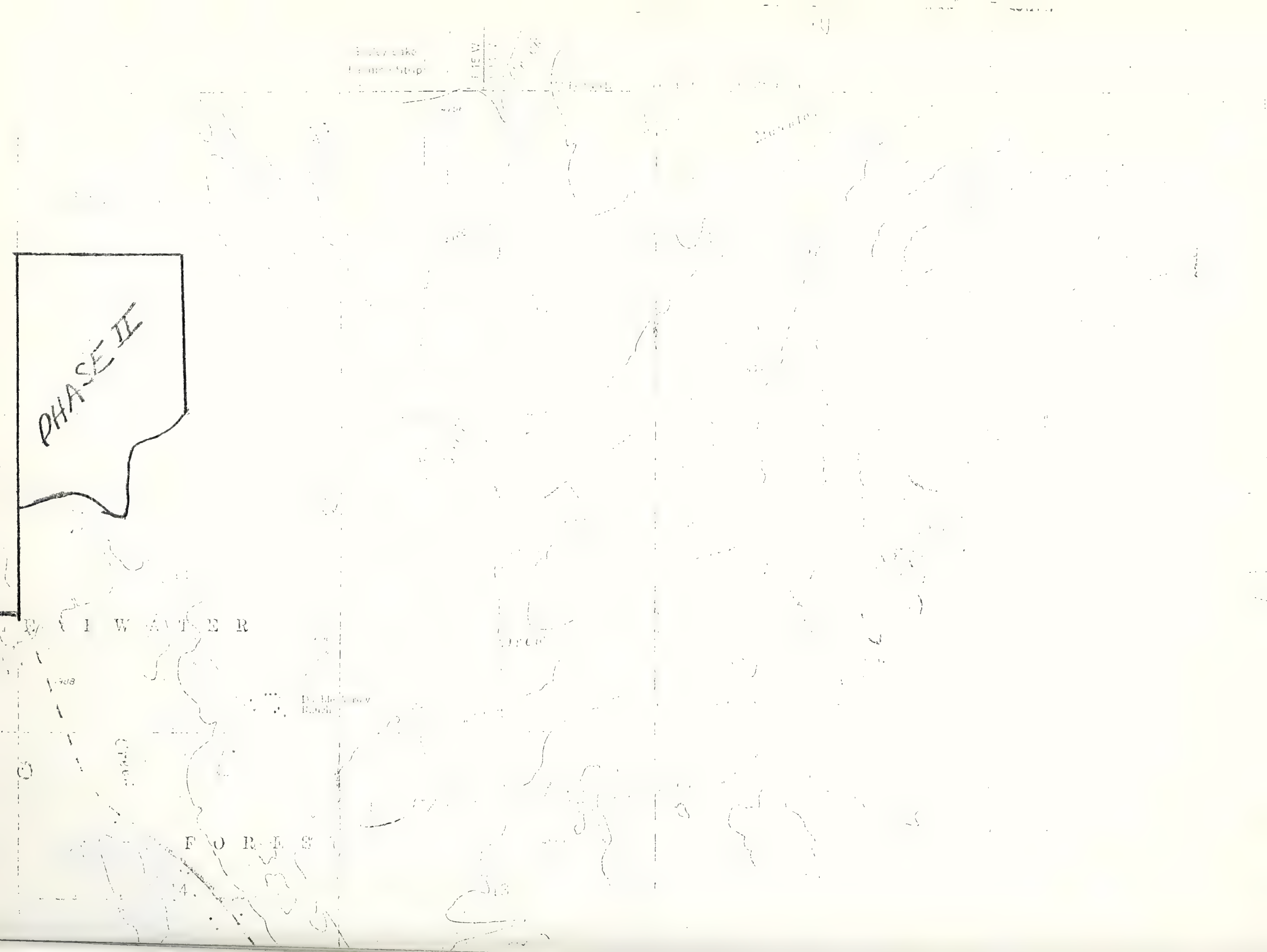
Irreversible commitment of resources that would result from approval of the project.

Some non-recyclable materials would be used in construction.

Conclusions

From the preliminary inspections by the state and local health departments, this property seems adaptable to subdivision. If no contrary information comes to light, this department will remove the sanitary restrictions with the understanding that the installation of all water supply and sewage disposal facilities will be under the supervision of the local department of health.

This report prepared by Mr. Dan Vicorek, Technical Writer, on data submitted by Mr. Albert J. Gasvoda, Water Quality Bureau and from information submitted by Ainsworth & Associates for the developer, Life of Montana.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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

Double

February 11, 1975

Honorable Thomas Judge, Governor, State of Montana, Helena
Bureau of Land Management, 1819 Holborn, Missoula
Environmental Quality Council, Helena
Department of Fish and Game, Helena
Department of Natural Resources, Helena
Department of State Lands, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Orville Daniels, Lolo National Forest, Bldg. 24, Ft. Missoula, Missoula
Gary W. Steuerwald, County School Superintendent, 208 Courthouse, Missoula
City-County Planning Board, Courthouse, Missoula
Board of County Commissioners, Courthouse, Missoula
City-County Health Department, Courthouse Annex, Missoula
Dorothy Trosper, Route 1, Box 43, Ronan
Ben F. Hardin, Jr., Soil Conservation Service, 2801 Russell Street, Missoula
Environmental Information Center, Box 12, Helena
Bill Kendall, Trout Unlimited, 715 Beverly Street, Missoula
Don Aldrich, 410 Woodworth Avenue, Missoula
Herb Richard, Life of Montana, Box 218, Bozeman
Daniel R. Richards, Water Manager, Box 253, Seeley Lake
Kalispell Branch Office, Box 1031, Kalispell
The Missoulian, Missoula
Mary Lee Reese, 29 South Alta, Helena
Northern Rockies Action Group, #9 Placer, Helena
Student Environmental Research Center, Room 212 Venture Center, University of Montana, Missoula
Montana State Library, Helena
Missoula Public Library, Missoula
Doris Milner, Montana Wilderness Association, Route 1, Box 1410, Hamilton
Environmental Studies Department, University of Montana, Missoula
Consumer Advocate, Governor's Office, Helena
Paul T. Richards, 902 North Park, Helena
Dan Smith, Citizens Alert for Guided Growth, 812 South Eighth, Bozeman
C. W. Gonder, 823 East Call Street, Livingston
Mrs. Winifred Lucky, 420 South Sixth Street, Livingston
Mrs. Vel Jensen, 430 South Sixth, Livingston
John Schillinger, Microbiology Department, Montana State University, Bozeman

Attached for your comments is the draft environmental impact statement for Phase 1A of the Double Arrow Ranch subdivision near Seeley Lake. Please send your response within 30 days of the above date.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

DV:sh
Attachment
cc: Mr. Wake
Mr. Carmody

MONTANA DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

February 11, 1975

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR PHASE 1A of THE DOUBLE ARROW RANCH MISSOULA COUNTY, MONTANA

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5009; and the act controlling water pollution, Section 69-4801 through 69-4827, the following draft environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Phase 1A of the Double Arrow Ranch, a proposed subdivision in Missoula County, for which a request has been received to remove the sanitary restriction which has been imposed.

Location

This development is approximately 1.5 miles south of the community of Seeley Lake in Sections 10, 11, and 15, Township 16 North, Range 15 West, MPM (see attached).

Description of the proposed development

Phase 1A would be composed of 80 lots ranging in size from 0.85 acre to approximately 3.5 acres. Of the total 217.07 acres platted in Phase 1A, 137.81 acres are in lots, 13.54 in roads, and 65.72 acres in common area. Phase 1A is part of what was originally the 316-acre Phase 1. Because of contradictory results of groundwater testing, the development was divided into two parts. The area encompassing the lotted area in Phase 1A has satisfactory groundwater conditions for on-site sewage disposal while the area that would encompass Phase 1B requires further testing during high water season.

Water supply would be through the Seeley Lake community water system.

According to the Soil Conservation Service, much of area 1A has moderate to severe soil limitations on homes, roads, parking areas, septic tanks and filter fields. Much of this limitation is the result of slopes steeper than 15 percent, which have been incorporated into the common areas. Percolation tests submitted by consultants to the developer indicate the soil would be satisfactory for subsurface drainfields.

The land currently is used for pasture. Vegetation cover consists of low grass with some fir and pine forest and some willows and shrubs along the Clearwater River.

Wildlife use of the development area apparently is limited to small game and non-game species, according to residents of the area. The Clearwater River reportedly is too warm and shallow to support a fishery during most of the year.

Solid waste from the development would be picked up by a commercial trash hauler servicing the area and deposited in an authorized landfill. Utility lines would be underground. Road surfaces would be paved. The Montana Department of Highways foresees no problems related to the proposed approaches to Highway 209.

Impacts

The U. S. Forest Service is concerned that continuing expansion of the recreational population in the Seeley Lake area will have serious effects on the recreational opportunities in the area. Using Bureau of Outdoor Recreation statistics, the Forest noted that on any given suitable day in 1985, 13,000 persons will want to go swimming somewhere in Montana, many of them presumably in the Seeley Lake area. Clearly, the Forest notes, the demand for swimming room is going to exceed the supply. Boating and waterskiing also will be overcrowding the available facilities, according to the same report. Boats towing waterskiers already are restricted to moving in a counterclockwise direction on Seeley Lake, Lake Inez, and Lake Alva, indicating that there already is considerable use of these waters.

The Forest Service pointed out two basic problem areas that could be further impacted by more recreational subdivision in the area. The first of these is the heavily used developed areas. If subdivision continues, according to the Forest Service, new and established residents of the Seeley Lake area could exhaust the present capacity of picnic areas, boat launches, swimming beaches, and boating facilities.

The second problem area is dispersed recreation, which is seriously impacted by increasing numbers of people. People going into the woods to get away from people meet more people, until it becomes necessary to limit, restrict, or forbid certain uses. Residents then are deprived of their recreational opportunities and must drive to another area.

According to records on file in the Missoula City-County Planning Office, a total of 359 lots were created in or around Seeley Lake prior to 1960. Between 1960 and 1970, another 440 lots were created. Since 1970, an additional 412 lots have been recorded.

Despite the large number of lots, population apparently has been declining in the area. Cutbacks in the forest products industry probably are the cause of a declining number of students in the local schools. The Seeley Lake grade school, for example, has a capacity of 250 children, but the peak enrollment was 224 in 1969, down to 165 in 1974, and continuing downward. Special levies are required because of the declining number of students. The principal of the school said the school funding situation would improve if there were more students, which would reduce the need for special levies.

Whether subdivision activity would lead to more students in the school is questionable, unless there is an upturn in the local economic situation. If lots were sold only to seasonal residents, there would be no new students in the school, but the tax base would increase considerably.

In the opinion of the Water Quality Bureau limnologist, no eutrophication would result from nutrients reaching groundwater and subsequently the Clearwater River and Salmon Lake from septic tanks. Even if other phases of the subdivision were approved and 200 houses with three persons each eventually were located in the area, and if all the nutrients were flushed directly into Salmon Lake with no soil filtration or plant uptake, the nitrogen addition to the lake would be between 0.069 and 0.25 milligrams per liter. The phosphorous addition would be between 0.034 and 0.0496 milligrams per liter. These figures are based on a lake volume of 19,480 acre-feet and a per person contribution of 0.06 pounds per day of nitrogen and 0.012 pounds of phosphorous on a year-round basis. The river flow from Salmon Lake is about 75,000 acre-feet per year, so the lake is completely flushed about four times a year, helping to prevent eutrophication.

Conclusion

In keeping with the recommendations of the Missoula County health officer, Dr. Kit Johnson, this department will require that the following conditions be met:

1. Each lot must have sufficient room for installation of a subsurface drainage system at least 200 feet from the high water mark of the Clearwater River.
2. A municipal water system must be provided.
3. The Missoula Air Quality Control Region is designated Priority II for particulates. In order to adequately protect the health and welfare of the future subdivision residents as well as the residents of the surrounding area, the Air Quality Bureau supports the resolution

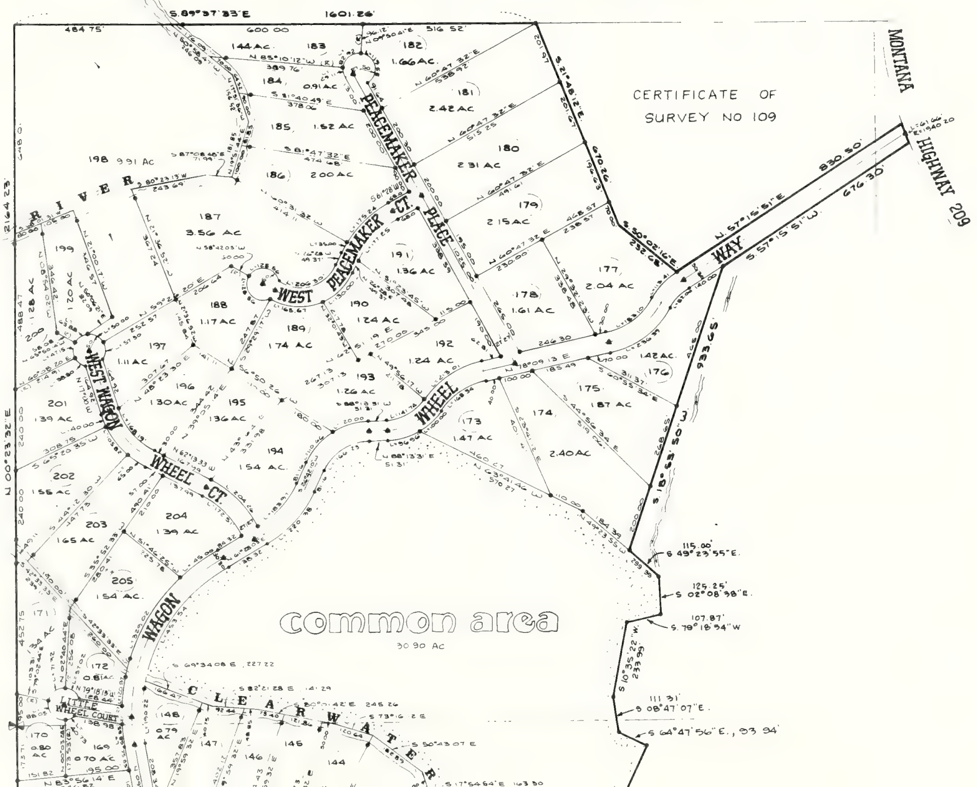
of the Missoula County Commissioners that no subdivision plats should be accepted unless all roads are paved prior to offering the lots for sale.

This draft environmental impact statement has been prepared by Daniel Vichorek, Technical Writer for the Environmental Sciences Division, from information supplied by the developer.

DOUBLE ARROW RANCH

PHASE IA

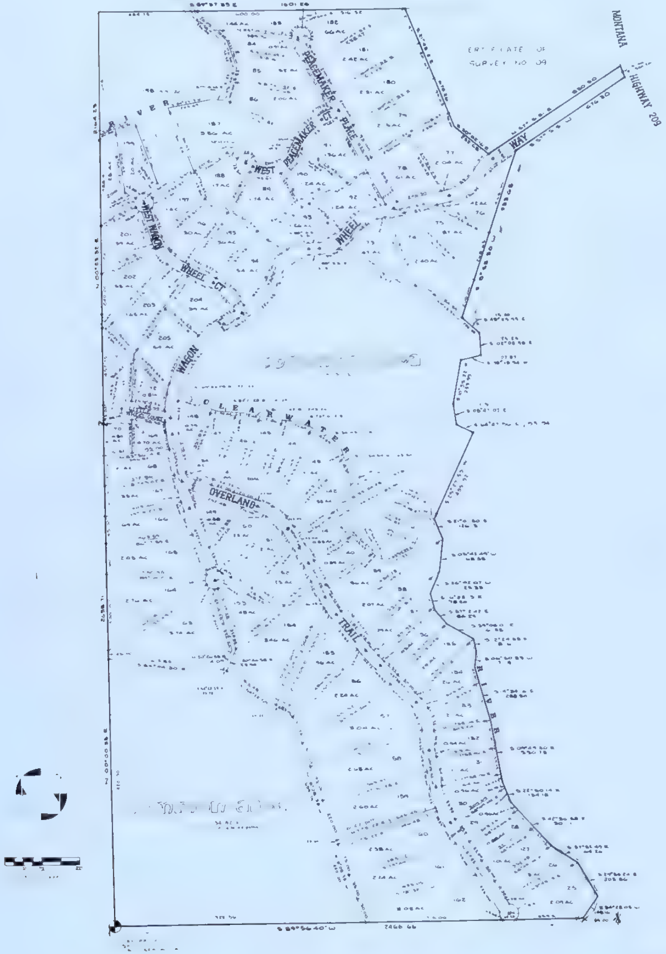
a subdivision of Missoula County, Montana, located in Sections 10, 11 & 15, T. 16 N., R. 15 W., Principal Meridian, Montana.



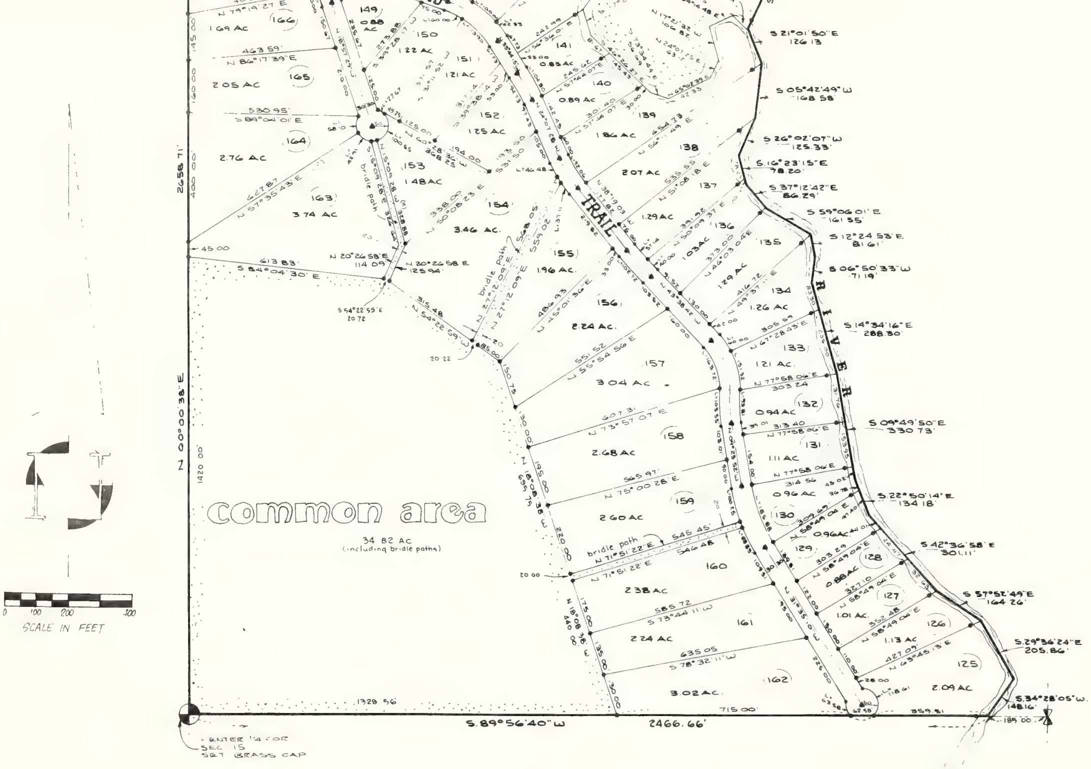
DOUBLE ARROW RANCH

PHASE IA

a subdivision of Missoula County, Montana, located in Sections 10, 11 & 15, T.16N., R.15 W., Principal Meridian, Montana.



Ainsworth & Associates
PROFESSIONAL LAND SURVEYORS & LAND PLANNERS



LOTTED AREA	137.81 Acres
ROAD AREA	13.54 Acres
COMMON AREA	65.72 Acres
TOTAL PLATTED AREA	217.07 Acres

- • 1/2" x 18 REBAR W. PLASTIC CAP TO BE SET AT ALL RIGHT OF WAY PC'S & PT'S WITHIN ONE YEAR OF FILING DATE
- ● 5/8" x 24 REBAR W. ALUM CAP TO BE SET AT ALL LOT CORNERS WITHIN ONE YEAR OF FILING DATE
- ▲ STREET MONUMENT (SEE DETAIL

SEE SHEET 2 FOR SECTION BREAK-DOWN DATA

Ainsworth & Associates
PROFESSIONAL LAND SURVEYORS & LAND PLANNERS
NO. 3 COMMERCE STREET ● P.O. BOX 299 ● MISSOULA, MONTANA 59801 ● PHONE 406 728-1880

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

July 2, 1973

STATE DOCUMENTS

JUL 10 1973

Board of County Commissioners, Courthouse, Missoula
City-County Planning Board, Courthouse, Missoula
City-County Health Department, Courthouse Annex, Missoula
Montana Fish and Game Department, Helena
Environmental Quality Council, Helena
Department of Intergovernmental Relations, Division of Planning and
  Economic Development, Helena
Life of Montana, Box 218, Bozeman
Ainsworth & Associates, Box 298, Missoula
Don Aldrich, Montana Wildlife Federation, Missoula
Dave Nunnallee, Branch Office, Box 1031, Kalispell
Student Environmental Research Center, Room 212, Venture Center, Missoula
✓State Library, Helena

Gentlemen:

The enclosed final environmental impact statement has been prepared for Double Arrow Phase IV, a proposed subdivision in Missoula County. This is submitted for your review and comments.

If you have any questions or comments, please feel free to contact this office.

Sincerely yours,

D. G. Wille

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:AJG:vlf
Enclosure
cc: Ben Wake
The Missoulian, Missoula
U.S. Forest Service, Missoula

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

June 29, 1973

FINAL ENVIRONMENTAL IMPACT STATEMENT

for

Double Arrow Ranch No. 4

a proposed subdivision near Seeley Lake in Missoula County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 5005; and the act to control water pollution, Sections 69-4801 through 4827, the following statement was prepared by the Environmental Sciences Division of the State Department of Health and Environmental Sciences, concerning the above subdivision, for which a request has been received for removal of the sanitary restrictions. State law requires that this department remove the sanitary restrictions before buildings requiring sewage disposal or water supply facilities may be installed on subdivisions with lots smaller than five acres.

Additional information on this subdivision has been provided by Life of Montana Insurance Company as owner of this property since the environmental impact statement was prepared on April 13, 1973. Additional information includes reports on septic tanks and drainfields for the subdivision by Bowman, Fergusen and Hanson and reports from Thomas, Dean and Hoskins, Inc. on septic tank drainfields and wells for the subdivision including cost comparison data. A report was prepared by Max Botz, hydrogeologist of the Department of Health and Environmental Sciences, on a field trip to the site.

Location

This property is located in Sections 6, 7 and 12, Township 15 and 16 north, Range 14 and 15 west, about 2.5 miles east of the village of Seeley Lake. It is bounded on the north by the Lolo National Forest. (see attached map)

Description of the proposed development

The owners of the land, operating through Life of Montana, a Bozeman insurance firm, propose to divide 770 acres into 266 lots. Stan Cohen of Geo-Associates Inc., of Missoula, consultant to the owners, said the roughness of the terrain and the distance from the highway probably would result in the construction of mainly summer homes on the property. It is proposed that water would be supplied through individual wells. Because of the nature of the heterogeneous glacial subsoil material, it is conceivable that it might not be possible to drill productive wells on all lots.

Max Botz in his report also stated that because of the underlying structure of the soil in the area, suitable wells would be difficult to predict on every lot in the subdivision. This department will follow the request of the Missoula City-County Health Department that a suitable well should be drilled and water obtained before any construction begins on the building sites. Mr. Botz recommends that all property purchasers in this subdivision be advised that successful nearby wells do not guarantee that all wells will be successful.

Thomas, Dean and Hoskins, Inc., consulting engineers, in a letter dated May 25, 1973, stated that there are six wells drilled within the subdivision area. These wells are spaced throughout the subdivision to indicate that water is available in all quadrants of the plat and at a variety of ground elevations. It is stated in this letter that there is reasonable assurance that water is available throughout the subdivision area. Minimum production of the wells was 7 gpm and ranged up to 40 gpm. A sustained yield of five gallons per minute is considered adequate for one household.

The ground elevations of the six wells ranged from 4,220 to 4,740 feet. Elevations within the development range from 4,120 to 4,910 feet.

Individual septic tanks would be used for sewage disposal Because of varying soil and groundwater conditions throughout the subdivision, and considering the steepness of some building sites, all lots may not be suitable for septic tank use. Those of questionable suitability will remain under sanitary restriction.

A report on this subdivision was prepared on May 15, 1973 by Professor C.C. Bowman, Dr. Hayden Ferguson and Dr. Thomas Hanson, stating that soils in the area are rocky sandy loam and loamy sand with permeability test that ranges from 60 inches per hour to 3 inches per hour. This report states that there is absolutely no reason to expect failures in drainfields that are properly placed.

In a letter dated May 18, 1973 from Thomas, Dean and Hoskins, Inc., consulting engineers, from a lot-by-lot survey, it is noted that they feel that all the lots except lots 41, 50, 51, 52, 71, 111 and 133 have suitable areas for septic tank drainfields. Because of lack of location stakes, this letter also recommends that lots 146, 147, 150, 152, 153, 155 and 157 be deleted from the present lifting of sanitary restrictions. The lots noted by number in this paragraph would also be deleted from approval of this subdivision.

Roads would be graveled. Some cut and fill would be required for building roads and preparing homesites in the steeper area. The Department of Health's "Environmental Protection Guidelines for Road Construction and Maintenance to Prevent Water Pollution" have been sent to the developers.

Topography and soils

Approximately 60 per cent of the land is relatively level, and the rest is hilly, with the varying soil and water characteristics often found in glaciated areas common to the entire area of the proposed development.

Timber on the land has been cut over at least once, with only reject and second or third growth trees remaining. Mountain Creek flows to the southwest through the northern portion of the property. There are some swampy areas and several small springs on the property. Some of the lots have back slopes exceeding 25 per cent, but have been surveyed to include building sites ranging from 8 to 15 percent, which the developers' engineer said was adaptable to septic tank and drainfield systems.

The 770 acres here under consideration is only one phase of a proposed four-phase development on a 3600 acre ranch, portions of which already have been subdivided.

Impacts

The impact of this subdivision would be substantial. As Mr. Large of the Forest Service noted in his comments on the draft statement, "Recreational use of both the Bob Marshall and Seeley Lake has increased rapidly over the past several years, and the day is rapidly approaching when use limitations will have to be initiated to

protect the very values that attract people to the area. Recreational homesite development will help hasten the day when such controls are needed."

Mr. Large wrote also that the development would degrade the scenic quality of the Highway 209 scenic corridor.

The Fish and Game Department said the habitation of 266 lots on this property could have a substantial impact on game animals in the area. The selective tree cutting used on the area in the past opened the forest canopy and allowed the growth of forage plants of the type used by deer and elk in the winter. The extent of use by deer and elk is not known, but could be significant.

As previously noted, there is a potential for ground and surface water pollution, if care is not taken in installing drainfields and septic tanks. Further testing will be required on some lots before septic tank installation is allowed.

Some erosion probably would result from the cut and fill needed to build roads and level building sites.

There should be little potential for air pollution, except for some possible dust blowing from denuded cut and fill and road areas. Some visual and odor problems might result if horses and other stock were allowed.

Mosquitoes could be a serious problem in the summer, as noted in the Forest Service comments.

Dr. Kit Johnson, Missoula County Health Officer, said the time spent by the county sanitarians on this development could cost up to $19,000. Offsetting this is the estimated tax revenue of $138,370 that would accrue if each of the lots were developed to an assessed value of $25,000.

The county accepted payment of $350 per acre, or $22,400, in lieu of dedication of parkland.

Alternatives available to this department

From an environmental viewpoint, an alternative for this subdivision probably would be to subdivide the land on a cluster grid system, with the large areas along the creek valleys and the steep hill faces viewed as a public trust. As noted by Dr. Johnson in his response to the draft statement, such a subdivision technique would have the advantages of reducing the road mileage to a length that could be hard surfaced. Further, such a plan would reduce the mileage of pipe needed to install a municipal water or sewage system, which would eliminate the concern with septic tanks and wells. The developer stated that cluster development is less desirable from the homeowners standpoint, as he purchases property such as this so neighbors are not close by.

However, this department has no authority to regulate the subdivisions, other than in requiring compliance with state laws in the installation and operation of water supply and sewage disposal facilities.

One alternate considered was the possibility of installing municipal water and sewage disposal systems. Cost data of a consulting engineering firm notes that the average cost per lot for individual system for sewers are estimated at an average cost of $1,000 per lot with an average estimated cost of $18,200 per lot for a municipal installation for the subdivision. It is also estimated that the average cost per

lot of an individual water supply by a well will be $2,000 and by a municipal water system with five pressure districts at $9,500.

Also, if the municipal systems were designed for the projected eventual population of the development, the systems would not work well, if at all, with the far smaller population that likely would reside in the area for the first few years.

If the area were used primarily by summer home owners, as expected, there would be serious problems in maintaining the municipal systems during the winter.

Another alternative available to this department is to remove the sanitary restrictions only on those lots believed amenable to individual septic and water systems, leaving the restrictions in effect on questionable lots. This will be done on this subdivision.

Short term-long term comparisons

The gradual degradation of the scenic values in this area is a significant impact. As the land is gradually degraded by subdivisions and other developments, it will become less valuable for its scenic and recreational values. The total impact of human activities on this immediate area cannot be evaluated at this time, other than to say that the total environmental impact will in time be huge.

Irreversible commitment of resources

The land would be lost into the foreseeable future for game range, domestic stock pasture and timberland. As noted above, scenic values would be lost.

Comments

Under the heading of Environmental Impact in the report of C. C. Bowman, the following is stated:

> The potential for polluting surface and groundwater is minimal providing the drainfields are properly located and designed. Those lots which appear to be steep, have benches or plateaus which provide excellent building sites. Drainfields must be developed on the contour and with sufficient field area to accommodate the size and use of the dwelling.
>
> The timber on the many lots is of little commercial value at this time. This area has been cut over at a previous date and only the reject and third growth trees are available at this time.
>
> The roads which exist at this time are those developed for logging purposes. The banks of these roads are stable. Those which are steeper than the angle of repose can be back sloped and reseeded without changing the aesthetics.
>
> The forage present throughout this area has little value for pasturing of livestock or wild game. The majority of the grass is known as pine grass and bear grass. Both are of very poor quality. Small areas of timothy and bunch grass exist in open areas. Scrub ash, willows and moss on the trees are the only source of forage of any quantity. Because of the poor forage, game animals do not stay in the area.
>
> Packers, outfitters and local residents indicate the Double Arrow Ranch is not the prime area for the migration or wintering of wild game. Most wild game migrate to the east and southeast toward the game range.
>
> The plan of widely dispersed summer homes with limited use should have little

impact on wildlife. The control of cats and dogs in the area rests with the landowners association. If such animals molest the wildlife, control can be exercised.

This area is in a heavy precipitation area. During the winter months, snow will be a problem for travellers; therefore, it can be expected that a very small number of the homes in Phase IV will be used for a year round bases. The majority of the homes will be used from early summer to early fall.

It is recommended that observation wells be installed, with perforated pipe to a depth of 8 to 10 feet, to determine the depth to groundwater on lots that appear to have high groundwater. Water levels should be observed for at least one year. Lots with high groundwater where no suitable location could be found for drainfields were 129, 130, 132, 133, 111 and 141. Sanitary restrictions on these lots will remain in effect pending further study.

Other lots in the steep western area where limited area would be available for drainfields are 147, 150, 152, 153, 155 and 157. Sanitary restrictions on these lots will remain in effect until suitable sites are found for house and drainfield.

Thirty days after the issue of this statement, this department will remove the sanitary restrictions, with the noted exceptions, unless new information indicating the probability of water pollution or lack of water supply comes to our attention. The removal would be made with the understanding that the county health department would inspect the installation of all sewage disposal and water supply facilities, as required by county regulation.

Life of Montana has submitted a Declaration of Protective Property Rights through the Double Arrow Ranch Conservation Association in which Sections 19 and 20 cover the grantor's guarantee of availability of water and the effect and duration of covenants as noted:

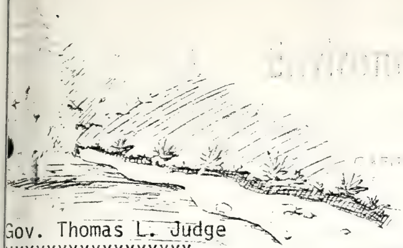
Section 19. GRANTOR'S GUARANTEE OF AVAILABILITY OF WATER: The Grantor covenants and agrees that if within three (3) years after the purchase of a lot, said puschaser shall discover after appropriate tests made, that a water well satisfactory to the health department of Missoula County cannot be produced upon such lot, said purchaser shall have the option to exchange said lot for a lot upon which a satisfactory water well can be produced, and if no such lot is available, said purchaser shall have the option to reconvey said lot to the Grantor and receive a refund of the purchase price paid therefor.

Section 20. EFFECT AND DURATION OF COVENANTS: The conditions, restrictions, stipulations, agreements, and covenants contained herein shall be binding upon each lot within the Premises and each Owner of property therein, his successors, representatives, and assigns, and shall continue in full force and effect until January 1, 2000, at which time they shall be automatically extended for successive periods of ten (10) years each, unless otherwise terminated or modified in accordance with the provisions of Section 21 of this Article.

It is recommended by this Department to approve all lots except lots 41, 50, 51, 52, 71, 111, 129, 130, 132, 133, 146, 147, 150, 152, 153, 155 and 157. It is also recommended that approval of this subdivision for removal of sanitary restrictions be contingent on the provision that all property purchasers in this subdivision be advised that successful nearby wells do not guarantee that all wells will be successful. In the event a successful well cannot be provided at a depth less than

350 feet on a lot, the owner shall provide an acceptable alternate method of water supply to the site or provide an alternate site to the purchaser.

This statement was prepared by Daniel Vichorek, Technical Writer, using information furnished by the developer, Life of Montana, and by Mr. Al Gasvoda, Architect, Water Quality Bureau.



STATE OF MONTANA

Environmental Quality Council

Gov. Thomas L. Judge
XXXXXXXXXXXXXXXXX

May 8, 1973

Dr. John S. Anderson, Director
Department of Health and Environmental
   Sciences
Helena, Montana   59601

Attention: Mr. D. G. Willems

Dear Dr. Anderson:

The following comments are submitted pursuant to your letter of April 13 regarding the draft environmental impact statement for Double Arrow Ranch Phase IV, Missoula County.

We note the tract in question is bounded on the north by the Lolo National Forest. It is further noted that the subdivision is of considerable size with a potential for seasonal use by 266 families. It is therefore not unreasonable to assume that Lolo Forest officials would be interested in reviewing the EIS for this development, the secondary effects of which may influence future forest management decisions in the area.

This reviewer is primarily concerned with the apparent fragility of the area, the apparent lack of any protective covenants, and the feasibility for enforcement of sanitary restrictions considering the large size of the subdivision and the work load imposed upon the average county sanitarian.

We wish to compliment those responsible for preparing this EIS for inclusion of a map. Maps are usually quite useful for assessing impact.

Thank you for your efforts toward compliance with the MEPA.

Sincerely,

FLETCHER E. NEWBY
Executive Director

By Loren L. Bahls
Loren L. Bahls, Ph.D.
Staff Ecologist

FEN/LLB/cjb

LEPHONE 728-4510

ISSOULA CITY-COUNTY HEALTH DEPARTMENT

COUNTY COURTHOUSE ANNEX, ROOM 301

MISSOULA, MONTANA 59801

May 31, 1973

Mr. Al Gasvoda
State Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Mr. Gasvoda:

The enclosed comments and field report should be attached to the Environmental Impact Statement of Double Arrow Ranch, Phase IV.

Sincerely,

Kit Johnson, M. D., M.P.H.
Health Officer

KJ/hf

Enc. Comments
Field Report

COMMENTS ON MONTANA STATE DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES DRAFT OF ENVIRONMENTAL IMPACT STATEMENT FOR DOUBLE ARROW RANCH, PHASE IV, dated April 13, 1973.

Description of Proposed Action;

One of the major problems confronting the Health Department in evaluating this subdivision is its size. This would not be a problem if the 770 acres were of roughly a uniform quality relative to their capacity to produce water for domestic supplies and their ability to absorb domestic sewage from a subsurface disposal system: however, that is not the case; although, roughly 60% of the land is relatively level and of uniform terrain, there is another 40% of the property which is hilly, with varying water problems. This subdivision would not have required as much expenditure of public health resources if it had been platted in at least two sections, one containing the primarily flat areas, and one containing the primarily hilly areas.

Although it is stated that the construction will be mainly summer homes, the prospectus as issued by the company describes this property as being available for summer homes and retirement homes: the retirement homes by inference probably means year around habitation. Also recreational homes in this country often implies year around recreation, with the increase of snowmobiling, cross country skiing, etc.

The problem of providing domestic water to many of these lots may be considerable. It is highly possible that some lots will require two to three wells to be drilled to several hundred feet before water may be located, and even then, water may not be obtainable. Although the developer's representatives stated to us that the company would make other property available in this case, this still represents a considerable loss of money on the part of the property investor, as he may have spent several thousand dollars and still not have water on any property. The problem here is to what extent should any public agency go to protect the rights of a private investor. On the one hand these lots are being sold as a private building lots for recreational or year around dwellings, which by its very nature implies domestic water supply would be available, on the other, we have no clear mandate by legislation to protect the buyer in this case. It is possible that if a high proportion of these lots should prove not to have water, or require investment in two to three wells at a high cost to the property owner, a class action suit, supported by the Health Department against the developer to achieve recompense may be necessary.

Topography and Soils:

I refer to the amended field reports of Mr. Cliff Foy relative to this property. The presence of a great deal of silt on some of these lots is significant as this tends to become clogged relatively rapidly by sub-surface sewage disposal systems.

An agreement was reached with the developer that lots as mentioned in Mr. Foy's report will require more detailed information before the sanitary restrictions should be lifted.

Environmental Impact:

The potential for pollution of surface and ground water exists as noted, and cannot be adequately insured against; although, this Department will endeavor as far as possible to prevent installation of sewage systems with a high possibility of contaminating the ground water. Again, the loss of investment in the property may fall upon the buyer, rather than the developer, because it is categorically impossible for us to say that each of the 266 lots will adequately hold sub-surface sewage without becoming a public hazard.

One of the principal reasons this development has an adverse environmental impact is because the grid system of platting was used. There is a great potential that the environment which people are presumably buying these lots to enjoy will be destroyed, i.e., individual lot owners may use land at their discretion relative to litter, outbuildings, and fencing across natural streams and walkways, natural game paths, etc. Although there are provisions in the covenant for landowners' association which would appear to be a safeguard against the aforementioned problems, experience in many parts of the country indicates that many of these covenants and associations often fail to do their duty.

Alternatives to the Proposed Action:

A fourth alternative to the proposed action would be to subdivide the land, using the cluster grid system, with the large areas along the creek valleys and the steep hill faces viewed as a public trust. This would have the advantage of

A. Preserving the environment in its most natural state for future generations to use;

B. Reducing the road mileage to an acceptable level for hard surfacing of the roads; and

C. Reducing the mileage of water system or sewer system required to where it might be economically feasible. This is especially important as it is highly possible that many of the lots may not be able to develop individual domestic wells, except at great expense to the lot owner.

Five. Although it may not be economically feasible at this time to develop this land as it should be developed to maintain its optimal recreational values for future generations of this county, it certainly could be held for development until such time as is economical to install municipal water and sewage systems.

Irreversible Commitment of Resources:

It is obvious that the major irreversible commitment of resources here is the land. Once this land is subdivided into 2 and one-half or three acre parcels, it is lost for any other purposes to all generations. A step of this nature with rapidly disappearing semi-wilderness land should not be taken lightly. This is particularly true as less than optimal use is being made of this land for recreational purposes, whereas in another five to fiteen years it may be economically feasible to develop this land in an optimal manner.

Comments:

One of the significant impacts this subdivision will have is on the cost to the local taxpayer. County and State governments should consider the total cost of providing services to this property. In terms of cost to the Health Department, each one of these plats will require two inspections by a sanitarian. One to initially approve of the location of a sub-surface sewage system, and a second to approve the installed system before it is covered. This requires six hours per plat, or a total of 1,600 hours of sanitarians' time if provided these plats are developed one at a time. Of course we recognize that this probably will not happen, and there will be some duplication possible. However, it is likely that the sanitarians' time required for this subdivision will be between 400 and 1200 hours. At today's prices the maximum cost to the County could be around $19,000, with a probable range of $5,000 to $15,000 for sanitary inspections. On the other hand the County will recover only $2,666 in sanitary inspection fees from these plats.

Kit G. Johnson, M. D., M.P.H.
Health Officer

KJ/hf/5/1973

DOUBLE ARROW RANCH
Ammended Field Report

June 1, 1973

This department has made three subsequent visits to the site of the Phase IV development. As a result of these visits, the following conclusions have been reached.

First in regard to the soil and to my previous criticism of Stan Cohen's report, we took some soil samples and sent them to an independent soils testing laboratory, and the lab test has shown the soil to be a silty soil instead of clay. Therefore, we feel that Stan Cohen's original classification of the soil was correct. The soil does fall well into a classification that will accept subsurface sewage; however, silty soil still causes problems on slopes.

During our original inspection, we found soil profile holes with water to four feet from the surface. Max Botz, from the State Department of Health, accompanied me on one of the inspection visits, and he speculated that the areas in which the water was showing in the soil profile holes was occuring because of an underlying clay strata. The lots in question were lots 129, 130, 132, 133, 111 and 41. Other holes that were showing evidence of water seepage during the first visit were located in spring areas or in drainage area; however, suitable locations have been found on these lots for the installation of sewage disposal systems. Therefore, this department is requesting that the sanitary restrictions on the above listed lots be held pending further study.

I commented on the original report regarding the steepness of many of the upper western lots in the subdivision. Thomas Dean and Associates, an engineering firm from Great Falls, has assured me that because of the size of the lots that roads can be constructed up the hill on these lots to flat places that are suitable for drainfields.

Because of the limited area available to drainfields on some of these lots, this department is requesting that the sanitary restrictions not be lifted on lots 147, 150, 152, 153, 155 and 157 until the house and drainfield is located.

Max Botz also states that because of the underlying structure of the soil in the area suitable wells would be difficult to predict on every lot in the subdivision. For this reason, this department feels that a suitable well should be drilled and water obtained before any construction begins on the building sites.

In conclusion, I have not yet visited every single lot on the subdivision and cannot categorically state that all lots are ideal as building sites. However, with reasonable caution and careful placement of water and sewage, no public health problems should occur. To assure that an adequate placement of the well, the house and the sewage is made; this department requests that a detailed plot plan showing the location

of the well, the house and sewage disposal system be approved by the building committee of Phase IV and presented to the Health Department prior to the issuing of a sewage disposal permit. Further testing and evaluation of the lots on which the sanitary restrictions have not been lifted will be required.

With these restrictions in mind, I would recommend that the sanitary restrictions be lifted on the remaining lots.

Cliff Foy

Cliff Foy
June 1, 1973

STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME

Helena, Montana 59601
May 11, 1973

RECEIVED
[illegible] 1973
ENVIRONMENTAL SCIENCES
DIVISION

Mr. Don Willems, Chief
Water Quality Bureau
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Don:

As requested in your memo of April 13, our regional office has reviewed the impact statement for the Double Arrow Ranch, Phase IV.

As you can tell from the lengthy commentary, this development is going to have a substantial impact on the wildlife population. Any steps your department can take to protect the fish and wildlife habitat of this state will be greatly appreciated.

I also believe the discrepancies in the impact assessment noted in our review should be corrected.

Sincerely,

James A. Posewitz

JAMES A. POSEWITZ, ADMINISTRATOR
ENVIRONMENT AND INFORMATION DIVISION

JAP/sd

cc: Fletcher Newby
Robert Rothweiler

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

Office Memorandum

TO : Wes Woodgerd Attn: Jim Posewitz **DATE:** May 8, 1973

FROM : Jim Ford by Robert Rothweiler

SUBJECT: Comments on environmental impact statement for Double Arrow Ranch Phase IV.

The area within the proposed sub-division has had excellent hunting for both deer and elk. However, in recent years increased developments, including logging and associated roads and construction of residences and recreational homes and the expansion of recreational use has had an adverse effect on game populations. Similar developments in other locations of Montana have altered food and cover habitat for big game animals.

The proposed sub-division is near the Blackfoot-Clearwater Game Range. The Montana Fish and Game Commission purchased this area for use by wintering big game animals. The development of this sub-division could have an effect on the patterns of movement of animals onto this range.

The impact statement indicates "because the area is heavily timbered it probably is not a forage ground for deer or elk although it might be part of the migration route." The steeper southwest and west-facing slopes are wintering areas for deer and elk. The area is heavily timbered, but many of these steeper slopes and ridges have been logged by selective cutting; this opened the forest canopy. Forage plants are available for wintering deer and elk. These include ceanothus (Ceanothus velutinus), Service berry (Amelanchier), mountain maple (Acer glabrum), and Oregon grape (Berberis repens). Service berry and mountain maple are in a heavily used condition. There was some use of these plants this past winter; however, because of weather conditions they were not heavily used. Grass is available for elk winter forage. There is some use on this grass; however, it could have been used by elk or domestic livestock. I would have to object to the statement indicating that this area was not a forage ground for big game animals.

It is understandable why the area would be desirable for summer homes. From the higher slopes a person can see the Mission Mountains, the lower end of the Swan range, most of Seeley Lake and portions of the Clearwater Valley. Also, a person can see extensive clear cuts on forrested land to the north. Because of these extensive cuts this project area may have high value for deer and elk cover. This would be lost when the area is "settled".

Test holes by the developer indicate that gravel occurs within two feet of the surface throughout most of the property area. High ground water is indicated by numerous bog areas and springs, especially those parts of

the project below the steeper slopes. Because of this topography, possible pollution of surface and ground water could result from drainage from septic tanks. The platting and the size of the lots may create ground water contamination. I recommend that the septic systems on the project be closed systems. The impact statement states that Phase IV is only one part of the development project for the entire 3600 acre ranch. Other parts of the ranch have already been subdivided. However, I saw little evidence that the ranch is being developed. It would be difficult to say that this proposed sub-division is in residential areas.

Considering that 770 acres will be sub-divided into 266 lots, the impact of people coming into the area will have considerable effect on game animals. I would say the greatest impact on wildlife will be just by people moving into the area.

Rocky

RR/vm

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
LOLO NATIONAL FOREST
MISSOULA, MONTANA 59801

ADDRESS REPLY TO
FOREST SUPERVISOR
AND REFER TO
1940

May 29, 1973

State of Montana
Department of Health and
Environmental Sciences
Helena, Montana 59601

Dear Sirs:

This letter contains our comments on the Draft Environmental Impact Statement for Double Arrow Ranch Subdivision - Phase IV.

Our interest in this development is threefold. First, there is National Forest land contiguous to the proposed development and much more in the immediate vicinity. Second, the Forest Service provides most of the public outdoor recreation facilities on the Clearwater Chain of Lakes, of which Seeley Lake, a few miles from the Double Arrow Ranch, is the largest and most popular. Third, State Highway 209, otherwise known as the Swan River Forest Highway, passes just to the west of the proposed development.

There are several onsite and offsite factors that warrant further consideration in the planning for this development.

Onsite Factors

Glacial material such as that in the Seeley-Swan area is noted for its variable and heterogeneous character. Discontinuous clay layers, gravel and sand lenses and impermeable clay to boulder mixtures are common. These will control effluent and groundwater routing, but their depth and extent are extremely difficult to predict. That these controls exist is borne out by the soil profiles and the presence of "a few swampy areas," "several small springs" and mention of high groundwater area in R. A. Ainsworth's correspondence of 4/4/73.

On the average, each point sampled represents roughly 12 acres or four building sites. In glacial material such as this, it is not reasonable to extrapolate information from one sample point over an

area of 12 acres for sanitary design.

The matter of adequate water is also open to question. Perched aquifers of low volume, effects of draw down by 260 wells, aquifer recharge and impermeable clay to boulder material may well preclude adequate total supply. Our own experience such as a 500' deep dry hole at Holland Lake and a 700' well with brackish water at Big Larch Campground is indicative of what can be expected when wells are drilled in glacial material. As a generalization, it is our experience that wells in glacial material in this region, if successful at all, yield 2 to 5 gpm from 100' to 200' depth.

It is my belief that individual wells and subsurface sewage disposal systems are not advisable for a subdivision of this size on glacial terrain.

We checked with Ainsworth and Associates, engineers for this subdivision, to see how much of the 770 acres was to be dedicated as parkland for the recreational use of all the lot owners. We were told that there may not be any on this portion of the development or perhaps, even on the entire 3,000 acres, as the developer is negotiating with the County to accept a cash settlement to satisfy the plotting law. I feel that this would be unfortunate both for the buyers and the adjacent landowners, and would not be in keeping with good development practices.

Another consideration which is both onsite and offsite is that of mosquitoes. The swampy areas in Section 6 referred to in the sanitary study also extend northward onto the National Forest in Section 32. The area harbors high mosquito populations. Mosquito drift from the wet areas on National Forest lands (and perhaps other adjacent private lands) would likely nullify any attempts at mosquito control within the subdivision.

Offsite Factors

The primary recreation attractions in this part of Missoula County are the lakes along the Clearwater River, the Bob Marshall Wilderness and the largely unroaded area bordering it, and the general natural beauty of the area. Double Arrow Ranch Subdivision and other recreation subdivisions are being developed in response to the demand for homesites in the Seeley Lake area. Recreational use of both the

Bob Marshall and Seeley Lake has increased rapidly over the past several years, and the day is rapidly approaching when use limitations will have to be initiated, to protect the very values that attract people to the area. Recreational homesite development will help hasten the day when such controls will be needed.

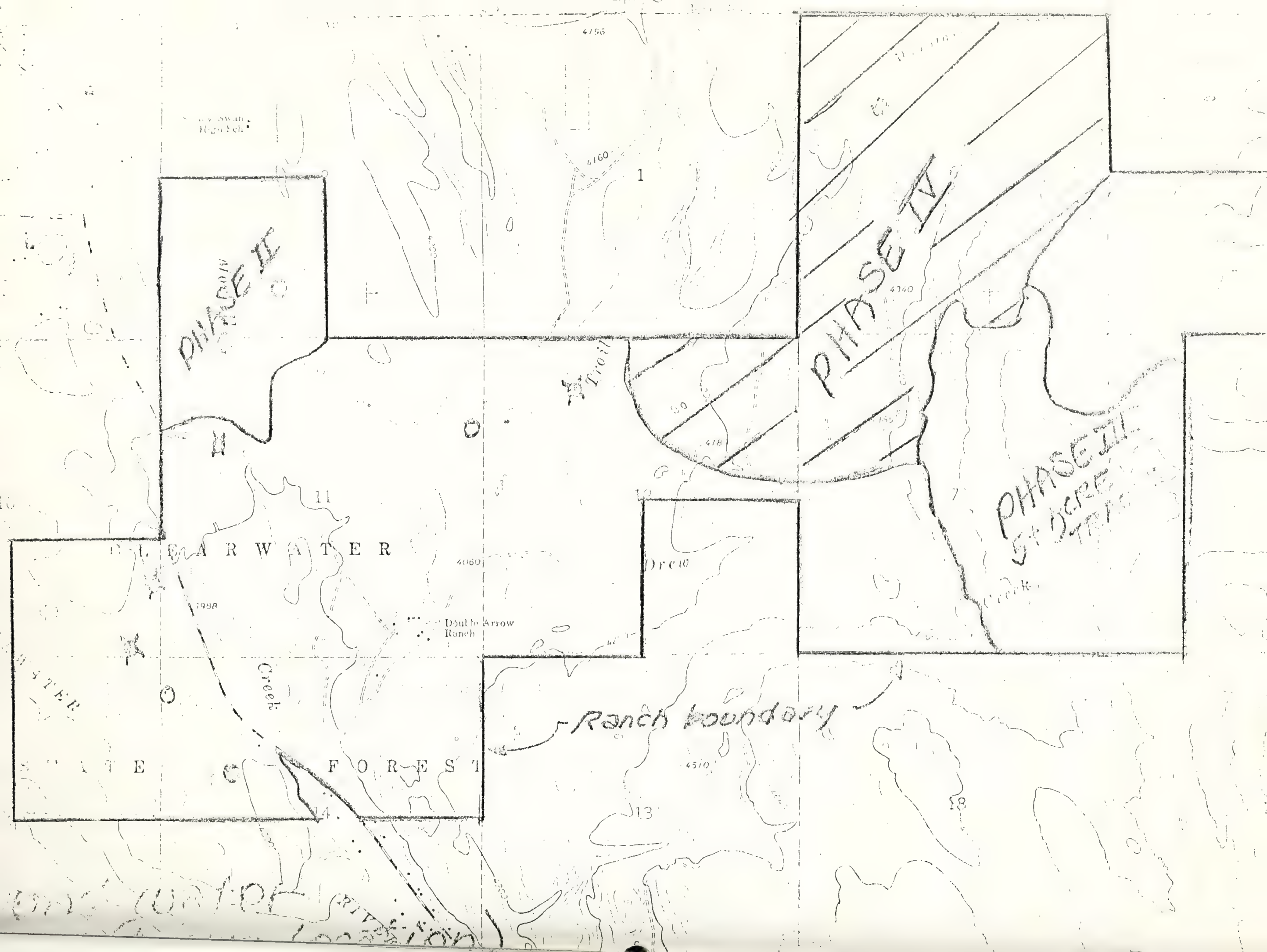
Double Arrow Ranch Subdivision Phase IV alone has 266 lots; if the remainder of the ranch is developed to the same density, there would be about 1,000 homesitesin the development. There are at present but 42 day use family units developed for public use on Seeley Lake, and these are already overcrowded. Although there is more land on the lake suitable for such development, we have had no funds for such use in recent years, and even if there were, we have a serious question about building facilities for more peopleon a lake the size of Seeley Lake.

Another offsite consideration is that of the visual quality of the valley, which has been recognized as one of its principal attractions. Degradation of the visual quality will lead to the erosion of other values. About half of this subdivision is in the direct middleground zone of the Highway 209 scenic corridor when southbound from Seeley Lake. The density of roads and lots being proposed on the steep slope in the southwestern half of Section 6 will have a major visual impact. The sideslope averages about 40%, indicating a need for substantial vegetation removal and grading. A poor understanding of this sensitive problem will certainly influence the quality of the environment of the valley.

Sincerely,

Jack Large

JACK LARGE
Forest Supervisor


PHASE II
PHASE IV
PHASE III
5+ acre
Ranch boundary
CLEARWATER
STATE FOREST
WATER
Creek
Double Arrow Ranch
Trail
Drew
Creek
4156
4160
4060
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4340
4510
1
11
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7
River

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STATE DOCUMENTS

December 26, 1973 1-17-74

Final Environmental Impact Statement

for

Eagle Creek Subdivision

A Proposed Subdivision in Flathead County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 to 69-5005; and the act to control water pollution, Section 69-4801 to 4827, the following impact statement is prepared by the State Department of Health and Environmental Sciences, Environmental Sciences Division, concerning the proposed Eagle Creek Subdivision, located near Whitefish, in Flathead County, Montana.

SPECIAL NOTE

The original impact statement was submitted as an environmental assessment, which normally would not be followed by a final impact statement. However, in the case of Eagle Creek Subdivision, negative comments were received from the State Department of Fish and Game, and from the Flathead County Health Department, warranting a final impact statement.

DESCRIPTION OF PROJECT AND PROPOSED ACTION

As described previously, the Montana State Department of Health and Environmental Sciences has received a request for approval of an 8-lot subdivision known as Eagle Creek Subdivision, near Whitefish Lake, and about 6 miles north of Whitefish, Montana. The plat, shown on the attached map, occupies 12 acres.

The owner-developer is Mr. Ralph Yearly of Whitefish. Surveying and plat submittal was done by Shaw-Smith, Inc., and engineering of portions of the project was done by D.K. Marquardt, of Kalispell.

WATER SUPPLY

Water supply for the project would consist of a spring intake on Eagle Creek, a collection box, a storage tank and a distribution system. Chlorination would be provided at the storage tank. The spring was inspected in late August of 1973, when surface water flows were minimal, and the flow in Eagle Creek appeared to be much more than ample.

TOPOGRAPHY, SOILS & SEWAGE DISPOSAL

Percolation tests conducted within the proposed subdivision indicate fairly rapid soil absorption, adequate for subsurface sewage disposal.

The terrain within the project is quite steep in areas, and is the single most serious concern with development. All proposed lots were inspected, however, and all have at least limited areas of suitable slope for sewage disposal. Such relatively flat areas will, of course, also be the prime building locations. Presumably, the control of the actual sewage drainfield sites will fall to the county sanitarian's office. This problem is especially acute in lot 7, where only one small saddle exists. Should the sewage drainfield there fail, there would be no alternative site.

For this reason, the developer, since the assessment was distributed, has agreed to combine lots 7 and 5 into a single, 2.1 acre lot. As such, the serious slope problems in this subdivision are much alleviated, and it is the opinion of the writer that all lots will have suitable areas for drainfield systems.

The State Fish and Game Department, and the Flathead County Sanitarian each objected to the use of septic systems on steep terrain (copies of letters attached). The above concession by the developer should improve the subdivision to an acceptable one in this regard.

Lots 1 and 2 appear particularly well suited for building sites from a sewage disposal standpoint.

SURROUNDING DEVELOPMENT

The area immediately surrounding the proposed subdivision is largely undeveloped. The Big Mountain area, about two miles to the east, is being heavily developed. Summer homes and cabins are being constructed at a fairly rapid rate along the nearby East shore of Whitefish Lake. There is little question that the entire East lakeshore will eventually be developed for housing, although steep slopes will be a deterrent in the entire area.

PROBABLE IMPACT ON ENVIRONMENT

At full development, an influx 8 families will have an appreciable impact on the immediate subdivision area. Road travel along the County road adjacent to Whitefish Lake will increase somewhat, as will road dust until the road is paved.

Roads are already constructed in the subdivision, and additional clearing will be done by lot owners to accomodate houses. Due to the steep slopes, some heavy equipment leveling will probably take place to improve building sites. Construction of water and sewer systems will result in further disruption.

Any game habitat in the area will be permanently lost, and aesthetics in the area, particularly during construction, can be expected to suffer. The State Fish and Game Department objected to the loss of game habitat, and recommended that the subdivision not be approved because the area is whitetail deer and grouse winter range. At present, however, no state legislation restricts the development of game range, and if other state requirements are satisfied, this Department is legally obliged to approve the project even though the detrimental effect on wildlife

could be serious. While this single small development will not have catastrophic effects on the wildlife, the lack of legislation or authority in this regard is again pointed out.

SHORT TERM vs. LONG TERM USES OF THE ENVIRONMENT

Subdivision of the subject 12 acres of land will be a long term commitment of the land, to the exclusion of all other beneficial uses. Building sites will be provided for 8 families, but other long term uses of the area, such as timber production, game habitat, or public recreation will be eliminated on a long term, essentially permanent basis.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Aside from construction materials to build 8 homes, the only substantial resource affected in this project is the essentially permanent commitment of 12 acres of land to the single use of residential building sites.

ALTERNATIVES TO PROPOSED ACTION

1. No Development

The area could be left in its existing condition. As roads are constructed, a water supply partly developed, and two previous lots sold and built upon, stopping development at this time would preserve little of the original natural environment.

2. Agricultural Use

Steep slopes make this land of little use for agricultural purposes.

3. Preservation of the Area

The land could be preserved for park or recreational purposes for future generations. As mentioned above, it is already partly developed and the natural environment of the area is already thoroughly disrupted. There is apparently little to make this area unique or of special interest for preservation, as similar undeveloped land exists throughout the area.

RECOMMENDATIONS

It is recommended that the revised, 8-lot subdivision be approved.

SOURCES OF INFORMATION

A personal inspection of the area, plus information and data supplied by the surveyor and by the engineer for the project, aided in the preparation of this statement.

THIS STATEMENT HAS BEEN PREPARED BY:

David Nunnallee, BSCE, MSCE, PE, Public Health Engineer for the Montana State Department of Health and Environmental Sciences. Related experience includes six years of work as a sanitary engineer for the States of Montana and Washington.

COPIES SENT TO:

1. Mr. Ralph Yearly, P.O. Box 1028, Whitefish, MT 59937
2. Mr. Fletcher Newby, Montana Environmental Quality Council, Helena, MT 59601
3. Mr. Jim Posewitz, Montana Fish & Game Department, Helena, MT 59601
4. Montana State Department of Health & Environmental Sciences, Kalispell, MT 59901
5. Mr. Art Clarkson, Montana State Department of Health & Environmental Sciences, Helena, MT
6. Montana Water Resources Board, Mitchell Bldg., Helena, MT 59601
7. Montana State Department of Intergovernmental Relations, Division of Planning and Economic Development, Capitol Station, Helena, MT 59601
8. Montana State Library, 930 E. Lyndale Ave., Helena, MT 59601
9. Mr. Ben Wake, Administrator, Environmental Sciences Division, Helena, MT 59601
10. USFS, Forest Supervisor, U.S. Forest Service, Kalispell, MT 59901
11. Board of County Commissioners, Flathead County Courthouse, Kalispell, MT 59901
12. Flathead Areawide Planning Organization, 3 Ford Bldg., Kalispell, MT 59901
13. Bruce McIntyre, MD, Flathead County Health Officer, Box 427, Whitefish, MT 59937
14. Mr. Les Espeland, RS, Flathead County Sanitarian, Box 919, Kalispell, MT 59901
15. Mr. John Thorsen, Whitefish City Hall, Whitefish, MT 59937
16. Mr. Wayne Herman, President, Flathead Wildlife, Inc., Box 4, Kalispell, MT 59901
17. Student Environmental Research Center, Room 212, Venture Center, Missoula, MT 59801
18. Dr. John Tibbs, Director, U. of Montana Biological Station, U.M., Missoula, MT 59801

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

RECEIVED
NOV 23 1973
ENVIRON. RESOURCES

Office Memorandum

TO : Wes Woodgerd Attn: Jim Posewitz **DATE:** November 27, 1973

FROM : Tom Hay By: Otis Robbins

SUBJECT: Environmental Impact Statement - Eagle Creek Subdivision

The subject subdivision is located about six miles north of Whitefish, Montana on the southwest facing slope of the Whitefish Range. A ten-lot subdivision is proposed on a 12-acre plot of ground.

A small stream, Eagle Creek, passes through this subdivision. Water supply for the project would consist of a spring intake on Eagle Creek.

It appears from the description that the terrain within the project is quite steep and the lots have limited areas of suitable slope for sewage disposal. It is possible that contamination of ground water and thus Whitefish Lake is a distinct possibility.

The Whitefish Lake area is a part of a very vital white-tailed deer winter range. The area supports deer and grouse throughout the year with its prime importance being that of winter range. The small area alone will not be catastrophic due to its size; however, in light of all the other extensive highly developments that have taken place in the past they represent a very serious threat to deer.

The potential of ground water pollution and the loss of critical deer winter range points out the problems this subdivision would have. We recommend that the subdivision not be approved.

Otis

Otis Robbins

OR/lb

FLATHEAD COUNTY
HEALTH DEPARTMENT

LES ESPELAND R.S.
COUNTY SANITARIAN

Box 919 Kalispell, Montana **Phone 756-9481**

MARION FINLEY R.N.
COUNTY NURSE

A.E. SCHOENHUTH R.S.
ASST. COUNTY SANITARIAN

BRUCE C. McINTYRE M.D.
COUNTY HEALTH OFFICER

THELMA STROM R.N.
ASST. COUNTY NURSE

November 26, 1973

Mr. David Nunnallee, P.E.
Public Health Engineer
State Department of Health and
Environmental Sciences
Box 1031
Kalispell, Montana, 59901

RE: Environmental Assessment of Eagle Creek Subdivision

Dear Mr. Nunnallee:

After reviewing the assessment and an on site inspection of the proposed Eagle Creek Subdivision, I agree with your concern of limited areas of suitable slope for sewage disposal.

I reccomend approval of the proposed subdivision contingent upon a restrictive covenant attached to the purchase agreement or other binding agreement requiring the buyer to secure approval of a proposed sewage system before any building, clearing, or development occur on a lot from this department.

Sincerely,

Les Espeland, R.S.
County Sanitarian

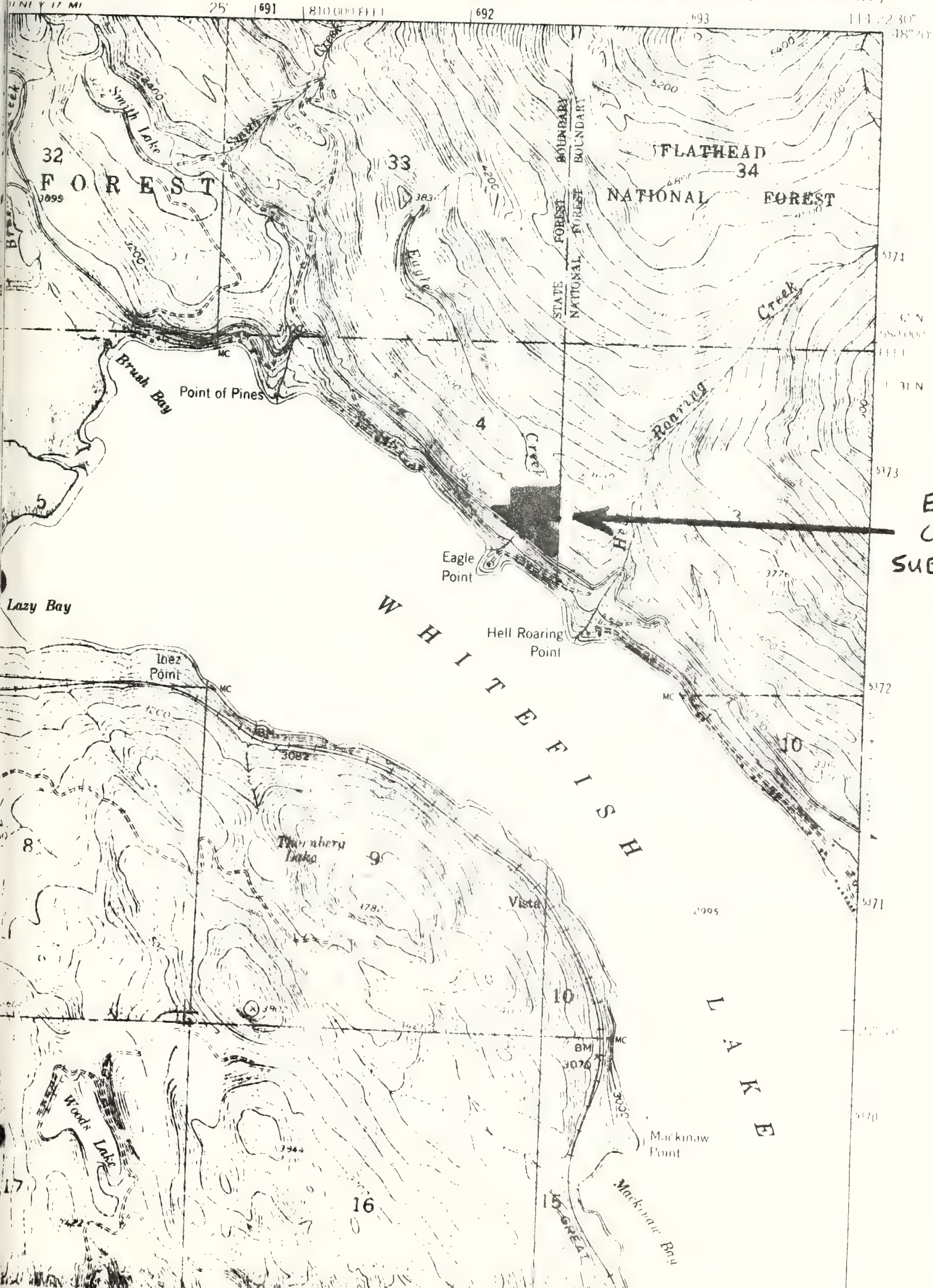
CC: Dr. Bruce McIntyre, County Health Officer
Flathead County Commissioners
James Oleson, County Attorney

LJE/mh

BEAVER LAKE QUADRANGLE
MONTANA-FLATHEAD CO
7.5 MINUTE SERIES (TOPOGRAPHIC)

(KINTLA LAKE 1:125,000)

R22W



EAGLE CREEK SUBDIVISION

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

STATE DOCUMENTS

August 10, 1973

Board of County Commissioners, Courthouse, Helena
City-County Planning Department, 38 South Last Chance Gulch, Helena
City-County Health Department, 201 South Last Chance Gulch, Helena
Environmental Quality Council, Helena
Fish and Game Department, Helena
Department of Intergovernmental Relations, Division of Planning and Economic Development, Helena
Mr. Doug Peterson, 32 West Sixth Avenue, Helena
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Mr. Ric Graetz, Box 894, Helena
Independent Record, Helena
Soil Conservation District, Capital Plaza #203, 515 North Sanders, Helena

Gentlemen:

The enclosed draft impact statement has been prepared for First Addition to Evergreen Estates located in Lewis and Clark County, Montana. This is submitted for your review and comments.

Under Montana law, a person or agency has thirty days to submit comments and/or supply additional information. An additional fifteen days may be granted upon specific request to an individual or agency. If you have any comments regarding the environmental impact statement, please submit them to this office.

After thirty days, the project will be reviewed in light of comments received that are applicable under Montana law.

Very truly yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
enc.
cc: Ben Wake

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

August 10, 1973

Draft Environmental Impact Statement
for
FIRST ADDITION TO EVERGREEN ESTATES,
a proposed subdivision in Lewis and Clark County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); the act controlling both public and private water supplies and sewage disposal for subdivisions, Section 69-5001 through 69-5005; and the act to control water pollution, Section 69-4801 through 69-4827, the following draft impact statement is prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences concerning the First Addition to Evergreen Estates, a proposed subdivision in Lewis and Clark County, Montana.

Location

This tract is located in the foothills at the north end of the Helena Valley in the E 1/2, Section 31, Township 12 North, Range 3 West, MPM, Lewis and Clark County, Montana, about ten miles north of Helena, Montana. The attached map shows the location of this subdivision.

Description of Proposed Development

The owners, Douglas F. Peterson and Floy E. Peterson, would divide 71.13 acres into 30 lots. Water supply would be through individual wells and sewage disposal would be through the use of individual septic tanks and subsurface drainfields. Restrictive covenants initiated by the owners state only single family residences may be constructed on each numbered lot.

The Lewis and Clark County Commissioners and their road superintendent have inspected the subdivision and found that roads and culverts meet their requirements. Road surfaces are gravel and roadside ditches accommodate surface drainage.

No open burning will be allowed on the property, and a commercial trash hauler is available to haul solid wastes to a sanitary landfill.

Topography and Soils

The property is located in the northwest portion of the Helena Valley. Underlying this area is the Precambrian Belt Series of sedimentary rocks composed of shales, argillites and quartzites, which have been altered in the geologic past by heat and pressure. Erosion and sedimentation have deposited layers of alluvium on top of the bedrock. Geo-Associates, Inc. conducted a geophysical survey immediately to the south of the proposed subdivision. The survey utilized two seismic lines which were interpreted as follows:

> A loosely consolidated weathered material to 10 or 12 feet; a highly fractured weathered shale interbedded with lenses of sand, gravel and clay to 142 feet; below this, fractured shales and argillites with some quartzite.

These rocks are not very porous, but deformation has caused fracturing. These fractures contain water and can be expected to yield small supplies to wells. Recharge of this groundwater supply is dependent upon precipitation in the tributary area percolating through these fractures. Low annual precipitation (about ten inches) and a tributary watershed of only about 120 acres create the possibility that water supplies could fall below minimum acceptable requirements.

The soils are, in part, of the Hauser Series, which have developed on slopes of 15 to 35 percent. They are gravelly loams and clay loams underlain at about 20 inches by a fractured bed of argillite, shale and quartzite. These soils present severe problems with respect to the installation of septic tanks and subsurface drainfields. Steep slopes present a mechanical problem in the installation of the system. There is a potential for lateral movement of sewage effluent and subsequent emergence of effluent on the soil surface. The shallow depth to consolidated material aggravates this situation. There is a potential for contamination of groundwater supplies by septic tank effluents that percolate into the soil and fractured bedrock. There are small areas where gravelly and sandy loams of the Scravo and Musselshell Series have developed. Percolation rates average ten minutes per inch and the unconsolidated material is generally five feet or more deep. These soils are satisfactory for the installation of septic tank drainfields.

The moisture holding capacity of the soil is low. Combined with low precipitation, this results in an area unsuited to agriculture production and an area with low annual production of native forage.

Impacts of Proposed Development

The most serious environmental impact of this proposed development would be on the groundwater resource. There would be removal of groundwater and a lowering of the water table in an area where water is deficient in quantity. The potential exists for the contamination of this resource by septic tank effluent that would percolate into the fractured bedrock.

The proposed development would not put productive agricultural land out of use.

Alternatives Available to this Department

a. Remove sanitary restriction.

b. Not remove sanitary restriction.

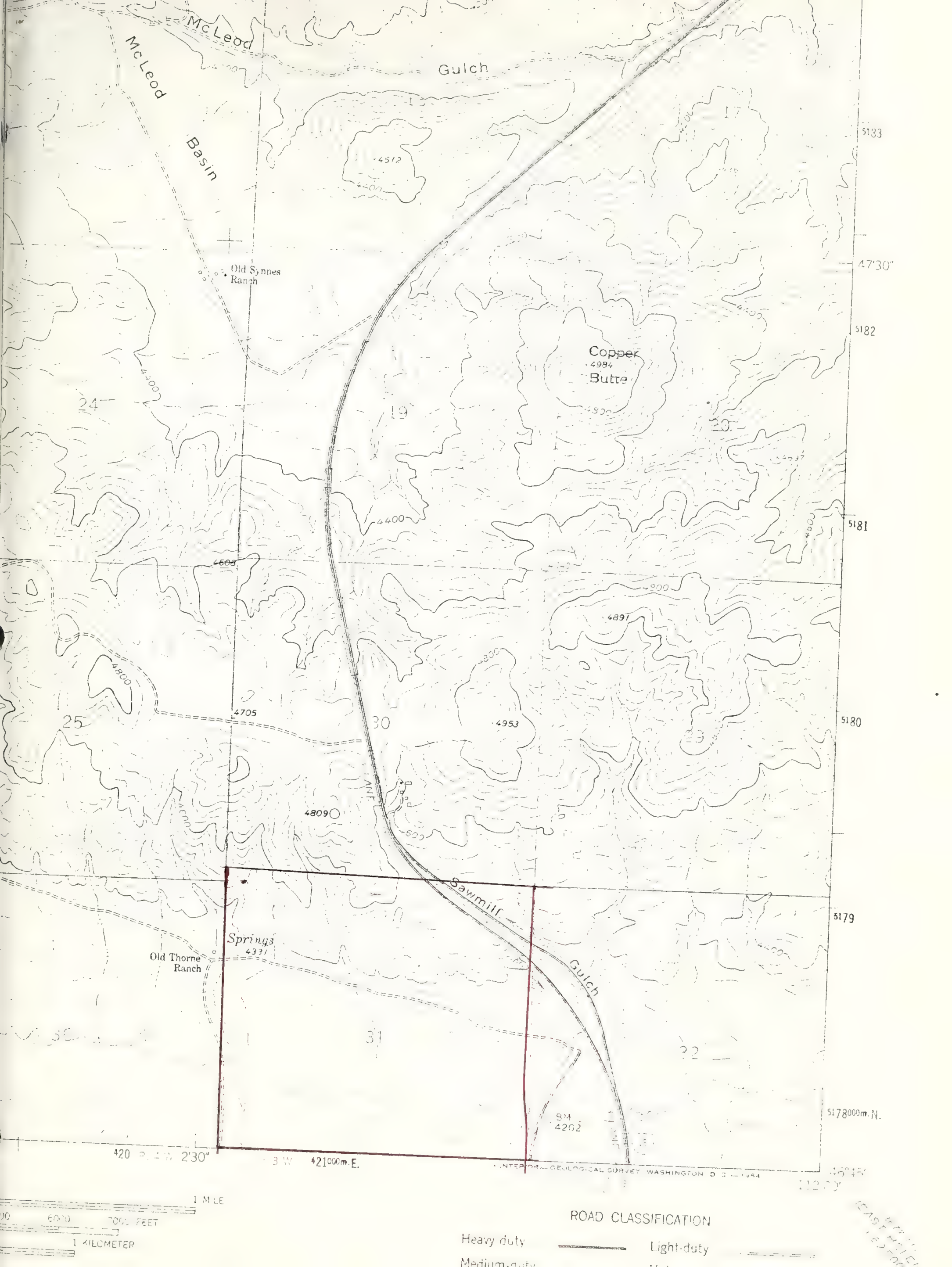
c. Remove sanitary restriction subject to certain conditions.

Comments

Thirty days after issuance of this statement, the department will decide whether to remove sanitary restrictions. Due to the slope, edaphic and hydrologic characteristics of this property, each lot will be considered individually.

Attachment (Map)

This statement prepared by A. P. Keppner, Soils Scientist, Water Quality Bureau from information submitted by the developer, Douglas Peterson.


McLeod
Gulch
McLeod
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4400
17
5183
Old Synnes Ranch
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5182
Copper
4984
Butte
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Gulch
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Springs
4331
Old Thorne
Ranch
31
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BM
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INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1964
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1 KILOMETER
ROAD CLASSIFICATION
Heavy duty
Light-duty
Medium-duty

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STATE DOCUMENTS
DEC 27 1973

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

December 19, 1973

Honorable Tom Judge, Governor, State of Montana
Environmental Quality Council, Helena
Department of Fish and Game, Helena
Department of Natural Resources and Conservation, Helena
Department of State Lands, Helena
Bureau of Land Management, 1819 Holborn, Missoula
Supervisor, Helena National Forest, 616 Helena Avenue, Helena
Rick Graetz, Helena Sportsmen's Club, Box 894, Helena
Ms. Janet Van Swearingen, League of Women Voters, 5205 Kerr Drive, Helena
Ms. Claudia Meloy, AAUW, Colorado Gulch, Helena
Mrs. Don Lies, Audubon Society, Box 343, Helena
Board of County Commissioners, Courthouse, Helena
City-County Planning Department, 38 South Last Chance Gulch, Helena
City-County Health Department, 201 South Last Chance Gulch, Helena
The Independent Record, 317 Allen, Helena
Mr. Bill Sternhagen, 833 North Last Chance Gulch, Helena
Mr. William Turner, VTN, Inc., Union Bank Building, Helena
Soil Conservation District, Capital Plaza #203, 515 North Sanders, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Philip G. Schlamp, Canyon Ferry District, USFS, 2001 Poplar, Helena
Ronnie Van Diest, Prickly Pear Sportsmen's Association, 901 E 6th Ave, Helena
Jim Hayworth, Gates of the Mountains Boat Club, Box 478, Helena
Pat Antonick, Sierra Club, Route #1, Townsend
Clifton Merritt, Wilderness Society, 4260 E. Evans Ave., Denver, CO 80222
Ken Baldwin, Montana Wilderness Association, Box 458, Bozeman
Don Aldrich, Montana Wildlife Federation, 410 Woodworth Ave., Missoula

Ladies and Gentlemen:

In response to a request, we are granting a 15 day extension of the waiting period on the Gates of the Mountains Lakeshore Homes Subdivision in Lewis and Clark County. All comments should be sent to me by January 10, 1974.

Sincerely,

Daniel Vichorek

Daniel Vichorek
Technical Writer
Environmental Sciences Division

DV:dg

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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

NOV 28 1973

November 27, 1973

Honorable Tom Judge, Governor, State of Montana
Environmental Quality Council, Helena
Department of Fish and Game, Helena
Department of Natural Resources and Conservation, Helena
Department of State Lands, Helena
Bureau of Land Management, 1819 Holborn, Missoula
Supervisor, Helena National Forest, 616 Helena Avenue, Helena
Rick Graetz, Helena Sportsmen's Club, Box 894, Helena
Ms. Janet Van Swearingen, League of Women Voters, 5205 Kerr Drive, Helena
Ms. Claudia Meloy, AAUW, Colorado Gulch, Helena
Mrs. Don Lies, Audubon Society, Box 343, Helena
Board of County Commissioners, Courthouse, Helena
City-County Planning Department, 38 South Last Chance Gulch, Helena
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Mr. Bill Sternhagen, 833 North Last Chance Gulch, Helena
Mr. William Turner, VTN, Inc., Union Bank Building, Helena
Soil Conservation District, Capital Plaza #203, 515 North Sanders, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena

Gentlemen:

Pursuant to the Montana Environmental Policy Act, this statement is offered for your consideration. All comments and questions should be sent to me within 30 days after the publication of this statement although a 15-day extension of this period may be requested if there is sufficient cause.

Sincerely,

Daniel Vichorek

Daniel Vichorek sh
Technical Writer
Environmental Sciences Division

DV:sh
Enclosure
cc: Ben Wake

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

November 27, 1973

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR

GATES OF THE MOUNTAINS LAKESHORE HOMES SUBDIVISION IN LEWIS AND CLARK COUNTY

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); and the act controlling both public and private water supply and sewage disposal for subdivisions; and the act to control water pollution, the following statement was prepared by the Environmental Sciences Division of the Department of Health and Environmental Sciences, which has been asked to remove the sanitary restrictions on this subdivision. State law requires that the sanitary restrictions be removed before construction on the property of any building that would require facilities for water supply or the removal of sewage or trash.

Location

This property is located in sections 11 and 12, township 12 north, range 3 west, east of the upper portion of Holter Lake on the property known as the American Bar, as shown on the attached maps.

Description of the proposed development

The owner, William G. Sternhagen of Helena, would divide 225.75 acres into 91 lots. The subdivision would include 21.91 acres reserved for public parkland. Water supply would be through individual wells. Roads would be left with dirt surface, and culverts would be used where dry stream channels were crossed.

All utility lines would be underground.

According to the restrictive covenants, "All structures shall be made of wood, and no asphalt or other materials other than wood and unpolished rock shall be used on the exterior of any buildings, including the roof. There shall be no A-frame type buildings, doublewides or trailers, and all buildings must be of a permanent type of new construction and shall be permanently erected upon an appropriate concrete or other acceptable foundation, with or without a basement. There shall be no mobile homes, modular homes, travel trailers, vehicle trailers, or motor homes; however, nothing in these covenants shall be construed to deny any type of permanent structure, including mobile homes or prefabricated buildings, so long as the same are permanently affixed to the land, if they are rustic in appearance, made of wood on the exterior, and comply with the building requirements of these covenants in all respect, and are approved by the improvement committee prior to installations."

Indian teepees would be allowed if they were "of a natural Indian style and construction . . . properly painted or colored . . . and not allowed to deteriorate or become offensive to the area."

The covenants would restrict the painting of the exterior of any building, including trim, restricting all structures other than teepees to wood stain or varnish to protect the exterior, which must be of wood or unpolished stone.

Fire protection would be the responsibility of the owners' association, which is provided for in the covenants. The covenants encourage the association to form a fire district.

Further, the covenants say all smoke outlets upon the premises will be equipped with spark arrestors wherever such outlets could possibly permit sparks to escape. The dwellings on the property shall contain an accessible box containing one fire shovel, one pulaski and one bucket, and a water system with a satisfactory operating hose at least 100 feet long with an adjustable nozzle, to be kept in an accessible place during the fire season.

The means of solid waste disposal is not specified, although the covenants specify that no trash, waste, garbage, litter, junk or refuse shall be thrown, dumped or left on any portion of the premises, and no burning of the same shall be permitted on the ground. Each owner or lessee shall provide suitable receptacles for trash.

Garbage containers and fuel and water containers that are not buried below ground level must be concealed by structures meeting the aesthetic and rustic standards specified in the covenants. There apparently is no commercial trash hauler available to the area, so residents would have either to remove their trash to the Helena landfill or resort to an incinerator. This department does not encourage the use of incinerators, because they seldom are properly operated and therefore cause smoke sufficient to constitute a public nuisance.

As shown on the attached map, this property does not front on the lake, but is separated from the water by Montana Power Company land along the northern portion, and by U. S. Forest Service land on the southern portion.

According to the Federal Power Commission regulations, the Montana Power Company "shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands . . . for the purpose of full public utilization of such lands and waters for navigation and recreational purposes, including fishing and hunting, and shall allow to a reasonable extent for such purposes the construction of access roads, wharves, landings and other facilities on its lands, the occupancy of which may, in appropriate circumstances, be subject to payment of rent . . . in a reasonable amount . . ."

Thus, it seems there should be no problem obtaining access to the water or constructing piers or other facilities on the Montana Power land. It is not yet known what position the Forest Service would take regarding the use of its land separating the property from the lake along the southern portion.

It is uncertain what type of pier facilities would be built, but a single dock to accommodate all boats for the development probably would be much better than numerous single piers.

Electrical power is not scheduled to reach the subdivision immediately. Eventually, however, an underground line would be run from existing Montana Power lines on Beaver Creek across Cochrane Gulch, Spring Gulch and the intervening territory to the site of the subdivision.

There are two access route to the property--one of which is north from Helena on the interstate highway and access road to the Gates of the Mountains Boat Club and then across Holter Lake by boat. The other route is all over land and proceeds from Helena to York, thence north to the community of Nelson and down Beaver Creek road to its junction with forest road No. 138 which leads to the property.

The forest road is unimproved, and it is the present intention of the developer to keep the road primitive to discourage superfluous travel to and from the site, either by property owners or the general public. The forest road will require improvement in several places to prevent it from eroding and contributing to seasonal sediment pollution according to the developer. The necessary improvements now are being negotiated with the Forest Service.

The Forest Service also would have to issue a special use permit before the power lines could be extended to the property over the route mentioned above.

One important consideration in the development of this land is the three osprey nests in the area set aside as a park in the northeast corner. One of these nests was occupied during the past summer, and a fledgling was produced according to a member of the Fish and Game Department who is studying the ospreys in the area. He said the other nests might be used in other years.

The osprey is not on the endangered species list but is currently classified as "status unknown" until further studies indicate the situation of the species.

Information from the Fish and Game Department indicates also that the reproduction rate of all the osprey nests in the Holter Lake area this past summer was slightly below what some studies have indicated is necessary for maintenance of the species. It is not certain, however, whether this study was applicable to the Holter Lake osprey.

The remarkable tolerance of osprey to human proximity is well documented, and the Fish and Game Department spokesman does not expect that nearby housing would discourage successful osprey nesting. It is possible, of course, that some human, not necessarily a resident of the subdivision, could shoot the ospreys or distrub them during the critical period of their incubation. Whether the survival prospects of the osprey would improve with the presence of human habitation is not certain.

The protective covenants deal with the osprey at some length, as follows in part: "All residents, owners and their families, and all other persons are hereby charged with the duty of protecting in every way possible the osprey . . . and shall do everything in their power to preserve the osprey and to keep them from being harmed and shall do everything possible to sustain their general welfare."

The owner also has asked the Fish and Game Department to help him plan for a blind, as shown on map "A", from where the osprey could be viewed without being distrubed.

Eagles also have been reported to use the property in the winter, and they may be displaced. However, they probably could relocate up or down river.

Elk use the area as winter range, and 20 to 30 head wintered there in 1972-73 according to the Fish and Game Department. Although human use of the area is expected to occur during the spring, summer and fall while the elk normally would be elsewhere, it seems likely that snowmobilers and other winter users might limit the usefulness of the area for elk winter range.

Topography and soils

The surface of this property varies from flat to gently sloping. The site of this property, the American Bar, and the nearby Gates of the Mountains, are of recent geological origin and resulted from the erosion processes of the Missouri River.

The Gates of the Mountains is composed of thin bedded grey limestone of the lodgepole formation and the thick bedded grey limestone of the Mission Canfon Formation which are of the Madison group. The Lodgepole formation is fossiliferous with live forms such as brachiopods, gastropods, corals, sponges, and bylozoans.

The Missouri River downcuts these limestones and the canyon now occupied by Holter Lake resulted. As the downcutting continued, the lateral erosion upstream became more constricted, leaving the prominent terraces which form the American Bar.

Underlying the alluvial silts, sands and gravels of the American Bar are thin bedded maroon and green argillites of the Spokane Share Formation of Pre-Cambrian age.

The bedrock argillites underlying the American Bar bear water in joint systems, bedding plains, and rock fractures. The alluvial sandy gravels deposited in the lowest terrace are receiving discharge from the Missouri River drainage and would provide a good water supply according to the developer.

Three exploratory wells have been drilled on the property, one each in lot 4, 52, and 77. The well in lot 7 is approximately 45 feet deep and produces 14 gallons per minute. On lot 52, the well is 120 feet deep and produces 3.5 gallons per minute. The well on lot 4 is about 100 feet deep and produces 10 gallons per minute. In the subdivision regulations of the Department of Health and Environmental Sciences, it is stated that individual water supply systems shall provide a sustained yield of at least 5 gallons per minute. The bottom of each well was in argillite.

The soils within the subdivision can be divided into two general groups, the alluvial soils which are deposited over the terrace areas, and the colluvial-outwash deposits in the areas including lots 5 through 25. The topsoils are sandy silts or silty loam soil with some gravel. Topsoil varies in thickness from about seven inches to two feet.

The alluvial soils are composed of sandy gravels, gravelly sand and sandy silt. Based on water explorations, the thickness of these soils may vary from 25 to 40 feet within the subdivision area.

The colluvial-outwash soils are composed of a gravel-sand-clay mixture. These soils vary from 15 to 20 feet thick.

Inspections of the site by members of the Water Quality Bureau indicate the soil is suitable for septic tank drainfields. Percolation tests submitted by the developer indicate that percolation rates on the land vary from about five minutes per inch to 30 minutes per inch, with the average between seven to twelve minutes per inch.

These data indicated that all lots have acceptable percolation rates.

A number of drywashes cross the property, and septic tank drainfields must be kept at least 100 feet from these. Two lots, 70 and 79, appear to lack sufficient area to allow the 100-foot separation between drainfields and intermittent watercourses. The Water Quality Bureau has requested site plans for these two lots, indicating arrangement of wells and drainfields on these and adjacent lots.

The vegetation on the property is mostly grassland with some scattered ponderosa pine. A moist area near the south end of the property has a vegetative cover of aspen, willow, cottonwood and chokecherry. Rabbitbrush, skunkbrush, juniper and rose are scattered through the subdivision area. The predominant grass appears to be bluebunch wheatgrass, although small patches of cheat grass indicate post soil disturbance or heavy grazing use.

The covenants specify that horses kept on the subdivision would be confined to corrals no larger than one-half acre and would not be allowed to graze on the property. This covenant is designed to preserve forage for wildlife according to the developer.

Impacts

The probable impact of this development on wildlife cannot now be assessed completely. Depending on the course of development and the behavior of the residents, the impacts could be minor or major. If the residents see fit not to molest the osprey, there probably will be no ill effects on the birds or their nesting. On the other hand, one boy with a .22 rifle could make short work of the osprey.

Another consideration is the attitude of wildlife toward buildings on their range. Although the developer said he was confident that elk would use the area for winter range as in past years, this is by no means certain. A spokesman for the Fish and Game Department said there is very little evidence that game animals would venture near human habitations on their range, but plenty of evidence to the contrary. Neither is it certain that the subdivision would not be inhabited by humans during the winter. Presumably some residents would travel to the subdivision by snowmobile at least occasionally during the winter.

Despite the probability of some impact on wildlife, it appears the developer has made a good faith commitment to the preservation of wildlife as noted in the covenants cited above.

The visual impact of the subdivision also will be offensive to many who are accustomed to seeing the American Bar in its natural condition.

If very many of the residents of the subdivision travel to and from the property by boat, there would be some increase in the use of docking facilities on the lake although this cannot accurately be assessed now.

Some air pollution might result from dusty roads. Incinerators also could cause air pollution problems which could be avoided if residents remove their trash to the Helena landfill.

Conformity with state regulations will be required in the installation of sewage facilities.

Some erosion and stream siltation might occur if the power lines are eventually run underground from Beaver Creek as envisioned by the developer, but this could be limited to a short time by Montana Power's usual reclamation of the areas distrubed by underground lines.

Although there may be some increase in the harvest of fish and game on the nearby areas, the harvest will still be regulated by seasons and limits, assuring that the harvests will not exceed the reproductive capabilities of the various species.

Alternate actions available to this department

1. Approve the subdivision as requested.

2. Approve the subdivision subject to certain conditions.

3. Disapprove the development.

Lots 70 and 79 also will remain under sanitary restriction until it can be ascertained whether it is possible to maintain the required separation among wells, drainfields and intermittent watercourses.

Further consideration will be given to the individual water supplies of the subdivision because the well log for lot 52 indicated a well producing less than the required minimum of five gallons per minute.

Short-term/long-term comparisons

There are many persons who believe that no one should have more than one residence. There is thus some controversy regarding the construction of recreational subdivisions.

Land such as the American Bar is worth much more as a subdivision than as grazing land. Whether such a valuation is realistic in the long run is unknown, although the loss of food growing land to the personal recreational use of relatively affluent individuals concerns many environmentalists.

Irreversible commitment of resources

There probably would be little if any irreversible loss of resources. Some non-renewable resources would be used in construction, but these probably could be recycled if necessary.

The land probably could be restored to grazing use.

There would be some increase in energy consumption by the part-time residents of the subdivision, partly in getting to and from the land, and partly in maintaining and heating two separate homes.

Comments

Unless new information requires an alternate course of action, this department will remove the sanitary restrictions with the above noted exceptions no sooner than 60 days following issuance of this statement. If no other information becomes available within 30 days, the Environmental Quality Council may waive a portion of the remaining waiting period. Although the Montana Environmental Policy Act requires this department to assess all impacts in the environmental impact statement, only matters dealing with departmental authority over water supply and sewage and solid waste disposal are grounds for disapproval of the subdivision.

Sanitary restrictions could be removed with the understanding that the county health department shall supervise the construction and installation of all water supply and sewage disposal facilities on the development.

This impact statement was written by Daniel Vichorek, Technical Writer, with information furnished by Al Keppner, Soils Scientist; Al Gasvoda, Architect; the Fish and Game Department, and the developer.

CERTIFICATE OF COUNTY COMMISSIONERS

We, the undersigned ________ ________, Chairman of the Board of County Commissioners of Lewis and Clark County, Montana, and ________________, County Clerk of said County, do hereby certify that the accompanying plat of "Gates Of The Mountains Lakeshore Homes", Lewis and Clark County, Montana as prepared in duplicate has been submitted to the Board of County Commissioners of Lewis and Clark County, Montana for examination, and has been found by them to conform to law and was approved by them in due [illegible] on the ____ day of ________, 1973, subject to the following

NOTICE: Requirements and conformance to regulations relating to easements to and within the above platted lots have been waived because of the nature of the easements permitting access thereto and by this approval no representation is made as to the existence or condition of such easements, if any. It is further understood that Lewis and Clark County, Montana shall assume no responsibility whatsoever for establishing, constructing, improving or maintaining any easement to the platted lots, either now or in the future

Chairman, Board of County Commissioners

County Clerk, Lewis and Clark County, Montana

CERTIFICATE OF SURVEY

State of Montana
County of Lewis and Clark

I, William [illegible] Langen, Helena, Montana, do solemnly swear that I have made the survey of the "Gates Of The Mountains Lakeshore Homes", Lewis and Clark County, Montana, that said survey was made in accordance with the provisions of Section 11-601 through Section 11-616 of the Revised Codes of Montana, 1947 effective this date, that the date of survey was November, 1972, that the annexed plat is in accordance with such survey, that the streets and the dimensions of the lots and blocks are as thereon designated, and that the said platted area was laid out on the ground according to law.

Registration No. ______
Helena, Montana

Subscribed and sworn to before me this ______ day of ________, 1973.

Notary Public for the State of Montana
Residing at Helena, Montana
My Commission expires ________

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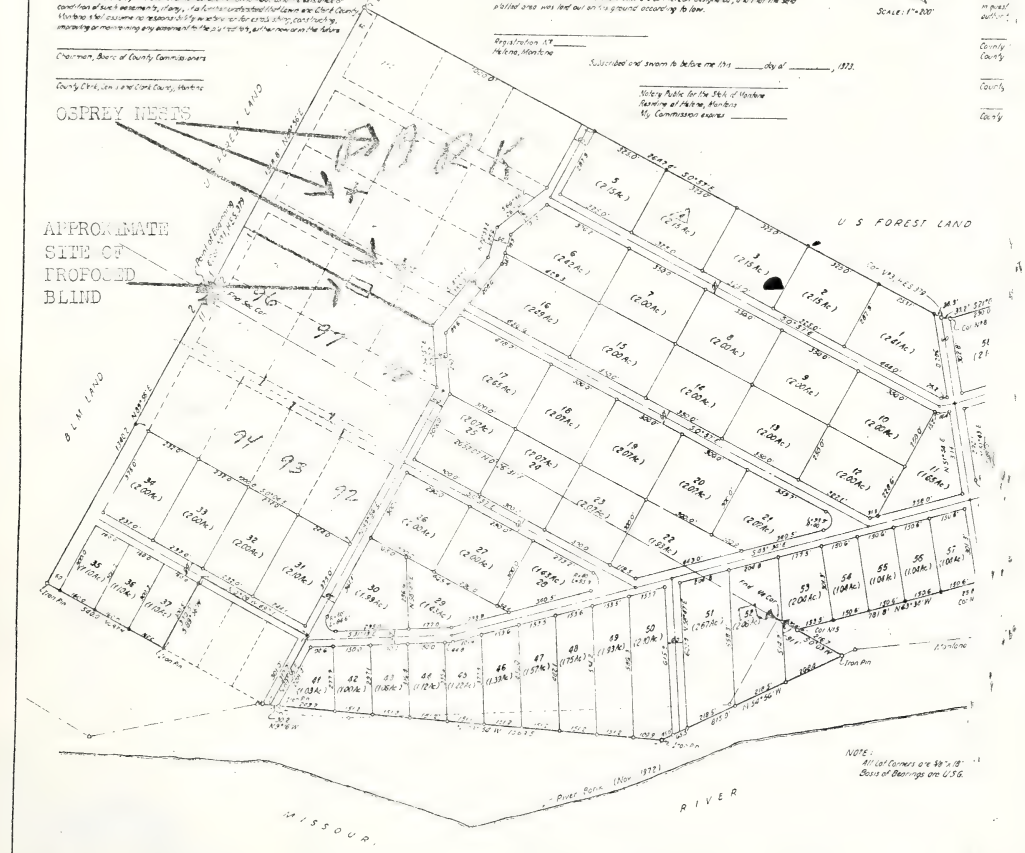
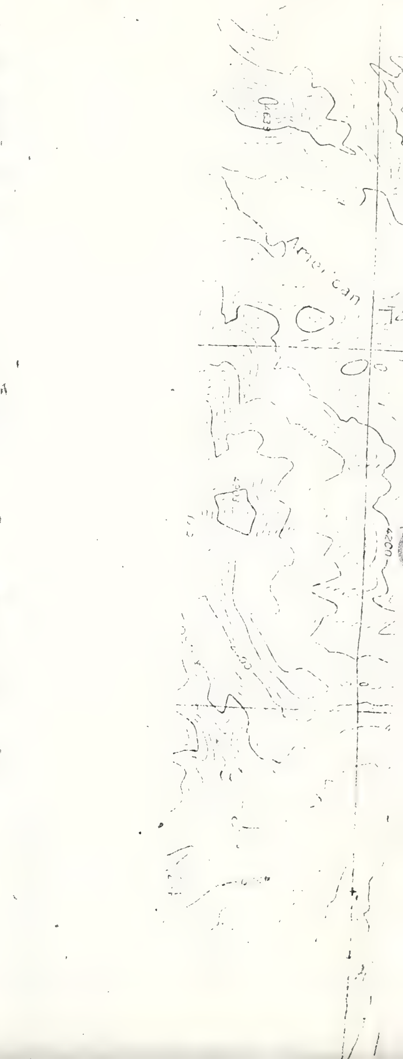


NOTE:
All Lot Corners are 5/8" x 18"
Basis of Bearings are U.S.G.



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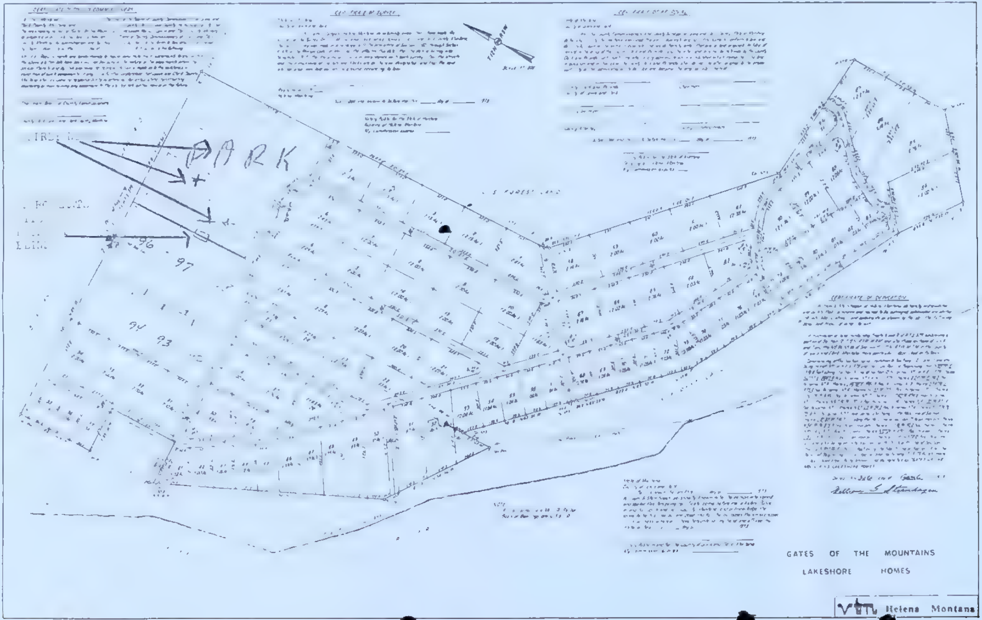
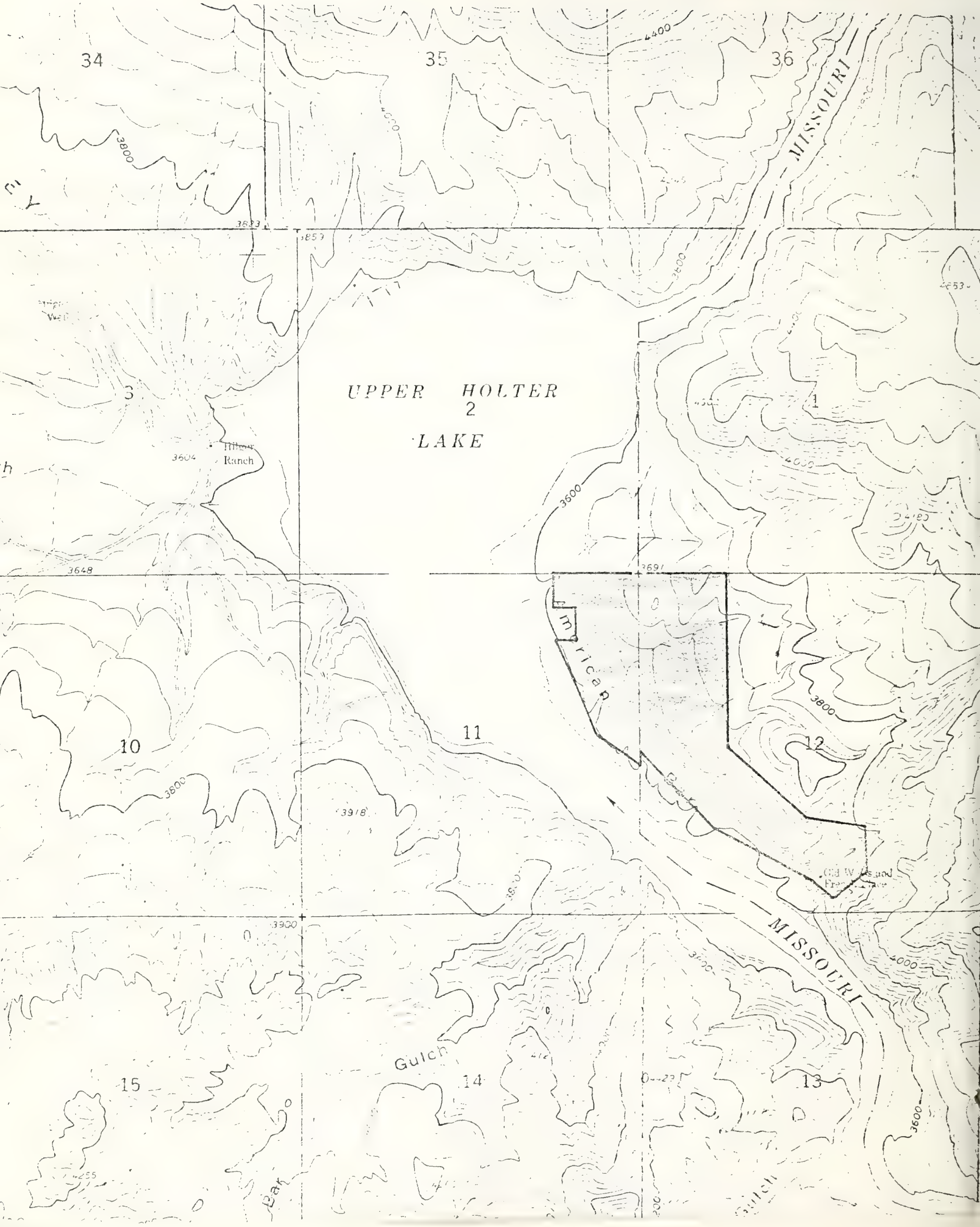


GATES OF THE MOUNTAINS
LAKESHORE HOMES

Helena Montana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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

[illegible] 20 1974

May 14, 1974

Honorable Tom Judge, Governor of Montana, Helena
Environmental Quality Council, Helena
Department of Fish and Game, Helena
Department of Natural Resources and Conservation, Helena
Department of State Lands, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Student Environmental Research Center, Room 212, Venture Center, Missoula
Montana State Library, Helena
Bruce Nelson Homes, 1401 11th Avenue South, Great Falls
Louville F. Garske, 3612 First Avenue North, Great Falls
Jack Golberg, 513-31 NW, Great Falls
Fish and Game Department Branch Office, Augusta
Soil Conservation Service, Augusta
Board of County Commissioners, Courthouse, Choteau
City-County Planning Board, Courthouse, Choteau
Board of County Commissioners, Courthouse, Helena
Great Falls Tribune, Great Falls
Acantha Printing Office, Choteau
Mike Clasby, District Sanitarian, Courthouse, Conrad
P. S. Cannon, M.D., County Health Officer, Choteau
Edwin Hegland, Gibson Lake Lodge, Augusta
Montana Power Company, Great Falls
Montana Power Company, Fairfield
Sun River Electric Co-op, Fairfield

Gentlemen:

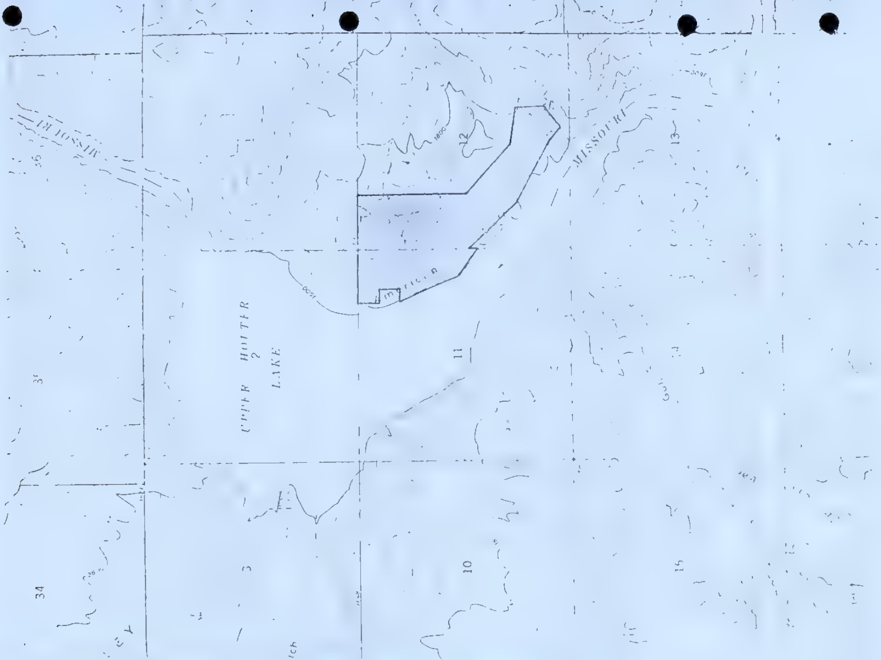
The enclosed draft environmental impact statement has been prepared for Gibson Lake Tracts in Teton County. This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of this statement. An additional 15 days is available on request. All comments should be sent to the undersigned.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Dan Vichorek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D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Dan Vichorek

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

May 14, 1974
E.S. 73/277

A Draft Environmental Impact Statement
for
GIBSON LAKE TRACTS
a proposed subdivision in Teton County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 5005; and the act to control water pollution, Section 69-4801 through 4827, the following draft environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning the proposed Gibson Lake Tracts Subdivision located near Gibson Reservoir in Teton County, Montana, for which a request has been received to remove the sanitary restriction which has been imposed upon the property.

Location

The proposed Gibson Lake Tracts Subdivision is a 159.6-acre tract located approximately 26 miles west of Augusta in Mortimer Gulch. It is situated in Section 33, Township 22 North, Range 9 West, MPM, Teton County, Montana, known generally as Homestead Entry Survey Number 709.

Description of proposed project

The owners would divide 36 acres of the tract into 58 lots ranging in size from 0.55 acre to 1.33 acre. The plat was filed prior to July 1, 1973. The remainder of the 159.6 acres is common ground with 3.85 acres exempted. Individual water and sewer systems are proposed.

Geology

The attached geologic maps (part of the Geologic Map of the Patricks Basin Quadrangle, Teton and Lewis and Clark Counties, Montana) illustrate the complexity of the geology in the vicinity of the proposed Gibson Lake Tracts Subdivision. Four thrust faults traverse the property and complicate subsurface geological conditions. The general structure of the area consists of sedimentary formations, steeply dipping to the west, cut by thrust faults.

Underlying the lower areas along Mortimer Gulch is the Rierdon Formation (map symbol Jr) of Jurrasic geological age, which is a calcareous mudstone with many thin argillaceous limestone beds. The thickness varies from 120 to 300 feet. Overlying this formation are alluvial deposits of glacial origin which consist of poorly sorted, unconsolidated gravel, sand, silt and clay as much as 50 feet thick. These alluvial gravels hold the greatest potential yielding groundwater but due to the shallow water table, few lots border them.

A small area of Morrison (Jm) and Swift (Js) Formations is found in the southeast of the gulch. A long, narrow occurrence of the Sawtooth Formation (Jsa), which is a calcareous siltstone, can be found along the east edge of the property. Along the eastern boundary of the subdivision is found the Castle Reef Dolomite, which ranges in thickness from 250 to 350 feet.

Several formations are found running parallel to Mortimer Gulch on the west side of the gulch. The Swift sandstone (Js), which is a fine to very fine, thin-bedded (one foot maximum), minutely cross-bedded sandstone is found at the lower elevation. Next in ascending elevation is the Morrison Formation (Jm), which is a partly tuffaceous mudstone with some thin sandstone beds. Dominating the western end of the property is the Kootenai Formation, a mudstone containing a few thick beds of sandstone, which are poorly sorted and locally cross-bedded.

Overlying much of the bedrock on the western half of the proposed subdivision are glacial deposits of varying thickness (ground maraine) consisting of unsorted rounded to subrounded rock fragments in a clay and silt matrix.

Individual water systems

Geologic conditions indicate that wells for a domestic water supply that are sufficient in terms of quality, quantity, and dependability could not be developed on each and every lot. A hand dug well of unknown capacity has been developed on Lot 18 of Gibson Lake Tracts East (east of main access road) in the alluvial deposits. A drilled well on Lot 33A of Gibson Lake Tracts West (west of main access road) yields two gallons per minute. Therefore, the evidence indicates that a means other than drilled wells must be provided for domestic water supply.

Several springs exist on the property. A lot owner may develop one of these springs for a domestic water supply in accordance with the sanitary requirements of the Department of Health and Environmental Sciences. Since most lots do not have springs, a cistern must be utilized.

A cistern is a satisfactory means of supplying water, but a dependable source must be available, and a sanitary means of transferring water from the source to the cistern must be available. The developer indicates that a large spring on the upper part of his holdings, which has served the JJJ Ranch, can provide a water source. This would be satisfactory to the Department of Health and Environmental Sciences under the following conditions:

(a) The supply is adequate.

(b) The spring is protected from entry of surface water.

(c) It is housed in a permanent concrete structure.

(d) A water sample be submitted for analysis and the spring water be chlorinated if necessary.

(e) The area be fenced to exclude livestock from the spring area.

(f) The proposed Homeowners Association be made responsible for maintenance of the spring and improvements.

(g) A sanitary means of hauling the water be available.

The developer has agreed to all of the provisions as stated above and is in the process of spring development. An approved water tank on a trailer will be made available to the Homeowners Association. Maintenance or replacement of the water tank and trailer would be the responsibility of the association.

Soils

The area comprising Gibson Lake Tracts has never been surveyed to determine the soils that have developed on the site. Ten-foot holes were dug on the following lots:

On the west lots - 3, 7, 11, 16, 24A, 26, 31A and 34
On the east lots - 1, 15 and 18

Information submitted indicated that the top eight to 24 inches to be a dark loam. From this depth to ten feet, the profile consisted of a gravelly light clay loam.

Percolation tests submitted by Louville F. Garske, Montana Registered Land Surveyor, gave the following results:

Tracts in West Area	Percolation Rate - Time required for water to fall one inch in minutes	Location on the lot of the test hole approximate
1	15 minutes	40' from road near SE corner lot
2	20 minutes	45' west of road near center lot
3	20 minutes	45' west of road near center lot
4	30 minutes	40' from road near center of lot
5	15 minutes	40' from road (W) near lot center
6	17 minutes	35' from road (W) near lot center
7	12 minutes	35' from road (W) near lot center
8	13 minutes	35' from road (W) near lot center
9	12 minutes	35' from road (W) near lot center
10	14 minutes	35' from road (W) near lot center
11	10 minutes	40' from road near lot center
12	20 minutes	35' from road near lot center
13	9 minutes	35' from road near lot center
14	7 minutes	40' from road near lot center
15	15 minutes	35' from road near lot center
16	7 minutes	35' from road near lot center
22	12 minutes	40' from east lot line near center lot
23	15 minutes	50' from S & E corner of lot
24	14 minutes	40' from east road near center of lot
25	15 minutes	40' from east road near center of lot
9A	15 minutes	40' from west lot line near center of lot
10A	16 minutes	35' from west lot line near center
11A	17 minutes	40' from west line near center of lot
W29	20 minutes	35' from west line near center of lot
W30	11 minutes	35' from west line near center of lot
14A	9 minutes	35' from west line near lot center
15A	10 minutes	40' from west line near center lot
26	28 minutes	30' from west line near center of lot
27	12 minutes	35' from east line near center of lot
28	17 minutes	35' from east line near center of lot
E29	15 minutes	35' from east line near center of lot
E30	9 minutes	40' from east line near center of lot

Tracts in West Area	Percolation Rate - Time required for water to fall one inch in minutes	Location on the lot of the test hole approximate
31	10 minutes	35' from east lot line near center of lot
W32	10 minutes	35' from east line of lot near center lot
23A	12 minutes	65' from west lot line near center
24A	15 minutes	50' from S & W corner lot
26A	20 minutes	60' from west line and 80' from S line
27A	15 minutes	near lot center
28A	12 minutes	50' from S & 50' from E corner of lot
31B	11 minutes	50' from S and 50' from E corner of lot
31A	12 minutes	35' from West line near center of lot
E32	12 minutes	35' from east line near center of lot
33A	9 minutes	50' from N line and 50' from east line of lot
34	15 minutes	40' from south line and 50' from east line

Tracts in East Area	Percolation Rate - Time required for water to fall one inch in minutes	Location on the lot of the test hole approximate
1	17 minutes	60' from south line in center of lot
2	15 minutes	50' from south line in center of lot
3	20 minutes	50' from south line in center of lot
4	20 minutes	50' from south line in center of lot
5 and 6	17 minutes	40' from south line near center of lot
7	15 minutes	125' from west line near lot center
9	14 minutes	100' from west line near center of lot
11	10 minutes	115' from west line near lot center
13	9 minutes	105' from west line near center of lot
15	7 minutes	135' from west line near center of lot
16	6 minutes	40' from east line (on road near center lot)
17	7 minutes	50' from east line near center of lot
18	12 minutes	40' from east line near center lot
35	15 minutes	65' from north line of lot and 65' from west line

Sewage disposal

Soils, geologic and topographic data indicate that individual sewage systems are possible on most of the lots. Either septic tanks and subsurface drainfields or incinerator units with a tank and drainfield for wastewater are proposed. A field investigation indicated that Lots 3, 16, 17 and 18 of Gibson Lake Tracts East and Lots 6, 12, 14, 22 and 27A of Gibson Lake Tracts West were unsatisfactory for development from a sewage disposal standpoint or from the standpoint of maintaining minimum distance requirements with respect to sewage disposal and wells, etc. The owner will file a statement with the Teton County Clerk and Recorder that no structures requiring water or sewer facilities may be erected on these lots. If they are purchased in combination with an adjacent lot or two of them combined, then they possibly may be utilized.

Solid waste disposal

Being in Teton County, future residents of this development may use the landfill at Choteau. However, this is approximately 50 miles distant and inconvenient. A haul to Choteau would involve travel through Augusta (Lewis and Clark County) where a landfill is in operation. An attempt will be made to get an agreement between the Lewis and Clark County Commissioners and Teton County Commissioners whereby residents of this area can use the Augusta landfill. It should be noted that this is not a necessity for the removal of the sanitary restriction under the laws applicable to this proposed subdivision.

Probable impacts from the proposed development

Impacts from development of this property would undoubtedly fall within the range associated with the residential use of mountainous property. However, it should be noted that this property was an old homestead and several old cabins exist. Thus, the "natural" environment has already been altered by human habitation and livestock grazing. In addition, a lodge (bar and cafe) was established some years ago on what is now Lot 33A of Gibson Lake Tracts West.

A visual impact would result from further development of this property. The cabin sites are in heavy lodgepole pine timber for the most part, which would tend to reduce this impact. The severity is purely speculation and the desirability is a matter of personal aesthetic values.

The potential for air pollution seems minute. Little dust from the roads would add particulates to the atmosphere as the access roads are designed for low speeds. Emissions from heating plants would be minimal as the property would primarily be a summer recreation area.

The probable impact of this development on wildlife probably cannot be assessed accurately. This property has had a history of human occupation and domestic livestock have competed with wildlife for forage. The consequences of a decrease in livestock utilization of forage, which would have a positive effect on wildlife, would be speculative at this time.

The Sun River Game Range and Bob Marshall Wilderness Area lie approximately six miles distant by pack trail. The effect of development of this property on the Game Range and Wilderness Area would depend on how often future residents would visit these areas.

There would be little impact on the local school system. The road from the Sun River Bridge past the proposed development is not maintained by Teton County during the snow season. Agreement with Lewis and Clark County for snow removal on this short section of road has not been reached. Although there are several year-round residents in the area, it is doubtful many families of school-aged children would make this area their permanent year-round home due to employment opportunities. However, the increased property valuation would generate revenue for the school district.

Any contamination of the creek that flows through Mortimer Gulch seems remote as there will be no road or cabin construction within several hundred feet of the stream. Most lots are over 500 feet from the creek.

Alternatives available to this department

(1) Remove the sanitary restriction which has been imposed upon the property as submitted. Due to the fact that nine of the lots appear to be unsatisfactory for development purposes, the department finds this alternative unacceptable.

(2) Refuse to remove the sanitary restriction which has been imposed upon the property. The environmental review process did not indicate the department can justify this action.

(3) Remove the sanitary restriction on those lots that can meet department requirements with respect to water supply, sewage disposal, solid waste disposal and water quality. The department could implement this alternative under the following conditions:

    (a) The spring proposed for a water supply has been developed under conditions outlined under water supply.

    (b) An approved water tank and trailer is available for transporting water from the source to the cisterns.

    (c) Lots 3, 16, 17 and 18 of Gibson Lake Tracts East and Lots 6, 12, 14, 22 and 27A of Gibson Lake Tracts West be excluded unless purchased in combination with other lots.

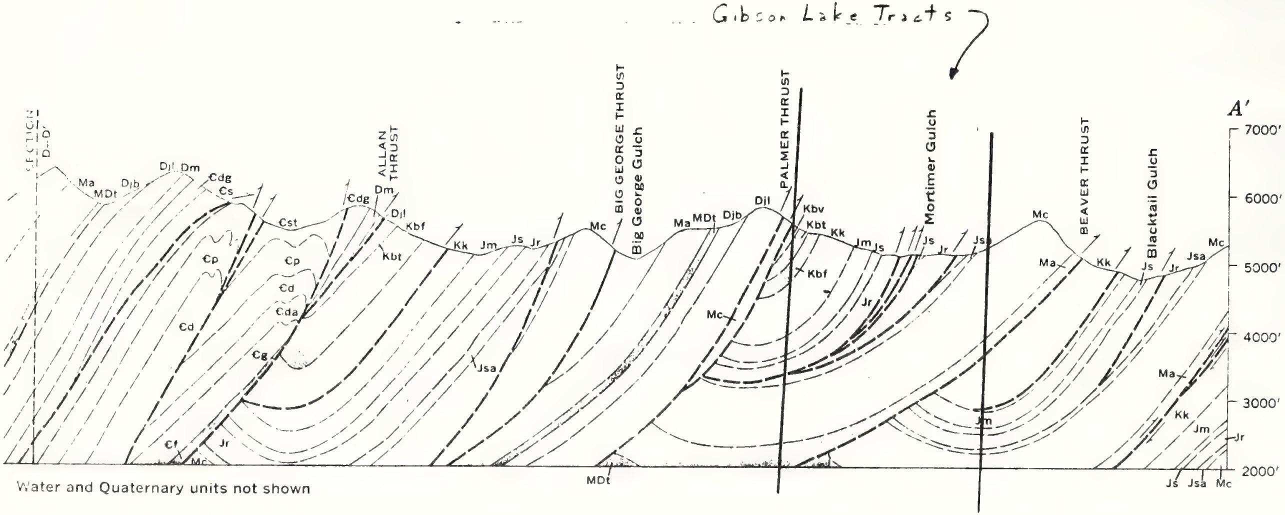
Short-term/Long-term comparisons

There are many persons who hold to the belief that no one should have more than one residence. Therefore, there is some controversy regarding the construction of recreational subdivisions. In the short-term, the land is most economically valuable to the owners as a recreational home subdivision for the affluent. To many individuals, the long-term worth is best represented by the intangible value inherent in leaving the land undeveloped for wildlife habitat and as pasture land for domestic livestock. The loss of wildlife habitat, grazing land and agriculturally productive land to the personal recreational use of a few concerns many individuals.

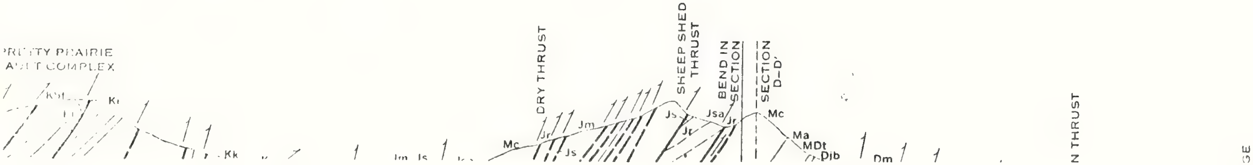
Irreversible commitment of resources

There would be a commitment of non-recyclable building materials used in the construction of second homes. The proposed subdivision would break the land into a multiplicity of ownerships, which would probably be irrevokable.

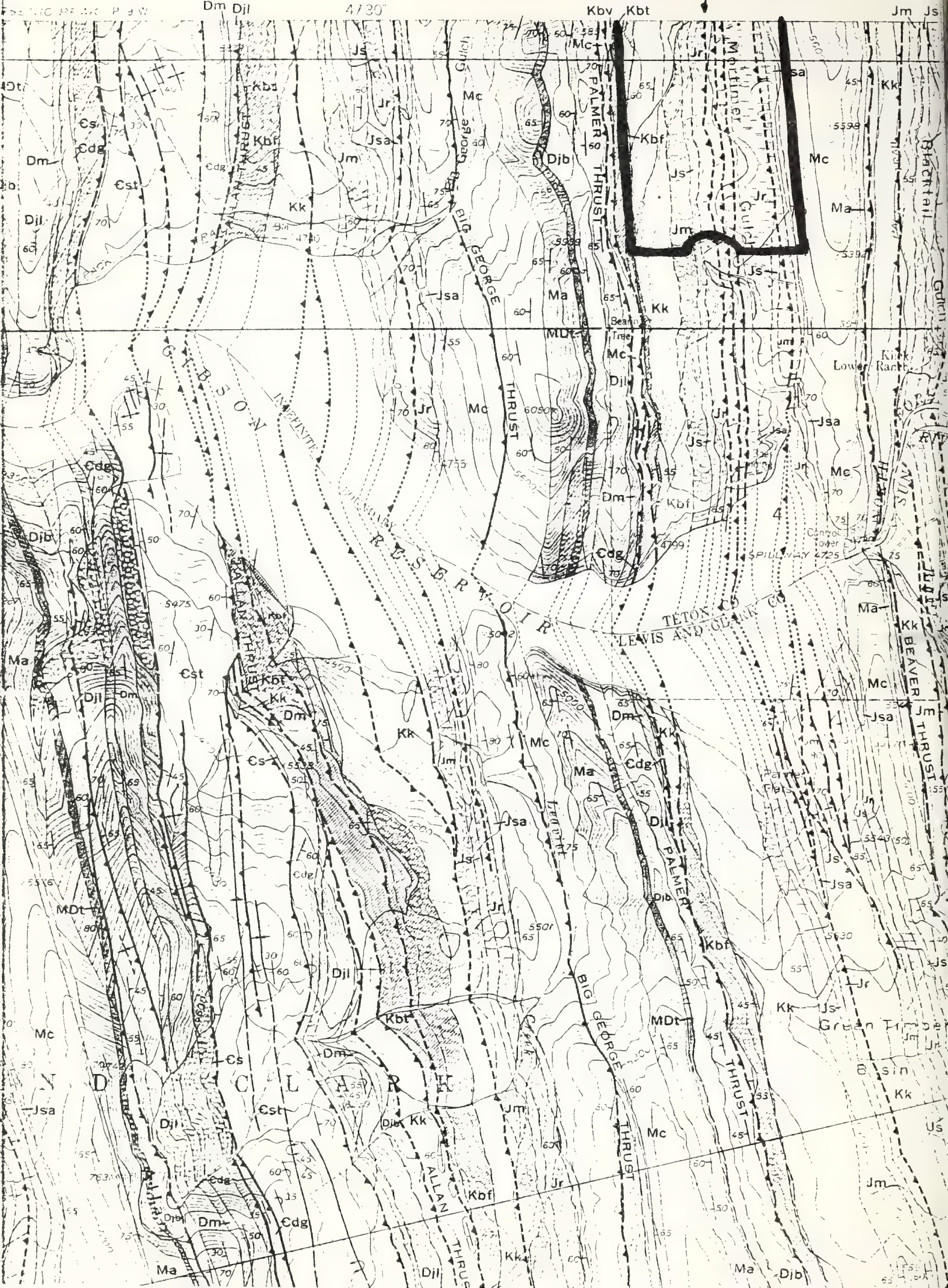
This statement was prepared by Alfred P. Keppner, BSF, MS, Soils Scientist, with information furnished by the developer, Jack Golberg Excavation Company and Louville F. Garske.



Water and Quaternary units not shown



Gibson Lake Tracts



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STATE DOCUMENTS

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

APR 10

April 5, 1974

Board of County Commissioners, Courthouse, Cut Bank
City-County Planning Board, Courthouse, Cut Bank
G. D. Waller, M.D., County Health Officer, Cut Bank
Mike Clasby, Sanitarian, Courthouse, Conrad
Environmental Quality Council, Helena
Fish and Game Department, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Dave Nunnallee, Branch Office, Box 1031, Kalispell
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library
Rick Graetz, Box 894, Helena
Philip E. Roy, Attorney At Law, Box 849, Browning
Blackfeet Indian Tribal Offices, Browning
U. S. Department of Interior, Blackfeet Indian Agency, Browning
Blackfeet Planning Commission, Browning
U. S. Department of Interior, National Park Service, Glacier National Park, Superintendent's Office, West Glacier
Glacier Park Inc., East Glacier
John P. Moore, Attorney for Big Springs Enterprises, 13 East Main, Cut Bank
Glacier County Clerk and Recorder, Courthouse, Cut Bank
U. S. Department of Agriculture, Soil Conservation Service, 24 West Main, Cut Bank
U. S. Department of Agriculture, Forest Service, 414 Main Avenue S., Choteau
U. S. Department of Agriculture, Forest Service, Supervisor's Office, Federal Building, Great Falls
Great Falls Tribune, Tribune Building, Great Falls
Pioneer Press, 8 East Main, Cut Bank
Independent Observer, 7 Third Avenue S.E., Conrad
Ray E. Bauer and Dr. Robert Casey, Big Springs Enterprises, 3841 Fourth Avenue South, Great Falls
William Big Springs, East Glacier
Shaw-Smith, Inc., Surveyors, 1108 South Main Street, Kalispell

Gentlemen:

Enclosed is a draft environmental impact statement for Glacier Acres, a proposed subdivision in Glacier County, Montana. All questions and comments should be received within 30 days following issuance of this statement.

An additional 15 days is available on request. All comments should be sent to the undersigned.

Sincerely yours,

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Ben Wake
    Dan Vichorek

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

April 5, 1974
E.S. 74/110

A Draft Environmental Impact Statement for GLACIER ACRES, a proposed subdivision in Glacier County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3); and the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 5005; and the act to control water pollution, Section 69-4801 through 4827, the following draft environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning the proposed Glacier Acres Subdivision located near East Glacier in Glacier County, Montana, for which a request has been received for subdivision plat approval.

Location

This project is located about two miles from East Glacier, Montana, along the Heart Butte Road, encompassing the North 1/2 Section 29, Township 31 North, Range 12 West, MPM.

An environmental assessment has been prepared for the proposed Glacier Acres Subdivision by Ecological Consulting Service, Inc. The assessment is hereby included as part of the draft environmental impact statement followed by an addendum containing the department's comments and additions. A plat, topographic map, soil type overlay, vegetative type overlay and various exhibits are available for public inspection in the Helena office of the Water Quality Bureau.

STATEMENT OF INFORMATION REGARDING WATER AND SEWERAGE SERVICE FOR REALTY SUBDIVISIONS

The following statement is made and submitted with the plat of a proposed realty subdivision in the state of Montana under the provisions of Chapter 69-5001 to 69-5005, Revised Codes of Montana, 1947 and the Environmental Policy Act, Chapter 69-6504 (b)(3).

I. DESCRIPTION OF PROJECT

1. *Name of Subdivision:* Glacier Acres *Location:* Glacier County
   Legal description: N 1/2 Section 29, Township 31 North, Range 12 West

2. *Owner:* Ray E. Bauer, Dr. Robert Casey (Big Spring Enterprises).

3. *Business Address:* 3841 Fourth Avenue South, Great Falls, Montana 59401

4. *Area of subdivision:* 323 acres *Number of lots:* 106 *Families accommodated:* 106

5. *Do you intend to build houses on this subdivision?* No
   Do you intend to sell lots only? Yes
   Do you intend to build on some lots and sell others without buildings? No

6. *Water Supply.*

   a. *Proposed method of water supply:* There are two methods of water supply for the subdivision:

      1. Water wells are to be drilled in approximation to or on Lot 15 in Block 2 and Lot 5 in Block 4. The logs of these wells will be submitted to the State Board of Health immediately upon completion. It is anticipated that these wells will furnish evidence of water availability to lot purchasers. However, if no water is found, then method No. 2 will be used or a combination of wells and method No. 2 may be used if water from wells is available. It is anticipated that no wells will be drilled in Lots 3 through 22 of Block 5; therefore, water supply will be by cisterns or indoor tanks, with water available at East Glacier (See No. 2).

      2. Cisterns of approved type, or indoor water supply tanks, will be used. Water supply will be from East Glacier. The Glacier Park Company agrees to furnish water to persons owning lots in Glacier Acres. Please see attached letter, Exhibit H, for confirmation.

   b. Approximate distance to East Glacier is two miles.

7. *Sewerage Service.*

   a. *Proposed method of collection and disposal of sewage:* The following methods will be used for sewerage and waste water disposal upon those lots designated. All Lots in Blocks 1, 3, 4, and all Lots except 3 and 4 in Block 2, and Lots 1, 2, 23, 24, 25, 26 in Block 5 may use septic tank and drainfield type sewerage disposal systems of the type approved by the State Department of Health and Environmental Sciences. Lots 3 and 4 in Block 2, and Lots 3 through 22 in Block 5 are restricted to one of the following methods or a combination of methods for sewerage and waste water disposal:

      1. Approved pit-type outdoor privy. Construction to be in compliance with recommendations of the State Department of Health and Environmental Sciences.

      2. Indoor incinerator type toilets with white water seepage pots.

      3. White water seepage pots may be used in combination with approved type pit privies.

   b. There are no known public sewer mains within usable distance from the subdivision.

8. *Drainage and Runoff.*

a. *Streets and roads:*

1. Surface water disposal from streets and roads is via gravity and borrow ditches. No special construction is deemed necessary.

2. Roads will be surfaced with gravel.

3. Roadway drainage systems consist of culverts and borrow ditches.

4. There are no stream crossings required. However, culverts will be installed, as indicated above, to facilitate adequate surface and roadway drainage.

5. Cuts and fills are shown on the topographic map. These are for road construction only.

b. *Other drainage problem areas:*

1. There are no low or wet areas which require drainage.

2. A few ditches and drainageways may be filled in.

3. These areas will be equipped with culverts, as necessary, to facilitate adequate drainage. No major drainageways will be blocked.

II. EXISTING ECOLOGICAL CONDITION

1. Present land use is for livestock grazing and related agricultural uses.

2. Soils of the area are described in Exhibit B, and types are those determined by the Soil Conservation Service, Cut Bank, Montana.

3. *Topography:* The surface of the area is quite variable and contains flat areas and rolling terrain, grading into quite steep slopes with considerable timber on them.

4. There will be grading in excess of one foot along the access roads. No large cuts or fills are anticipated, nor have any been accomplished. Location of roads is shown on the plat.

5. Water table determinations will be made concurrently with the well drilling stated in Section I, 6, a, 1 above. Additional water table determinations will be made this spring in low-lying areas as a final check on whether septic drainfields can be approved. If water table depths are under the allowable six feet below surface, lots within this area will not be allowed to use septic tanks and drainfield sewerage disposal system, but must then use the approved pit type privy or the incinerator toilet and white water seepage pots. This determination will be conducted in cooperation with the county sanitarian.

6. None of the land has been flooded and no building sites lie within the area of 50-year floodplain.

II. ENVIRONMENTAL ASSESSMENT

1. Environmental Impact:

Glacier Acres is basically a seasonal home development, although some purchasers may live there year round. There will be increased human use of roads and recreational resources. Some vegetation will be destroyed as dwellings and out buildings are constructed and roads built, wells drilled and similar activities conducted.

Surface water areas will not be drained. Therefore, no decrease in aquatic habitat is expected. The effect upon water related wildlife species will be negligible. Some terrestrial species may be disturbed to the point of abandoning the immediate area. However, this would not measurably affect the area's population of such species.

Soil disturbance from construction activities, such as building sites and roads, may present an erosion hazard, particularly upon the steeper slopes, unless counter measures are employed to prevent and check such erosion.

There will be a slight increase in air pollution, depending upon the heating systems used in dwellings and also from increased use of vehicles in the area. This is anticipated to be extremely light, and no problems are anticipated.

There will be an increase in noise, particularly during construction phases of development, but this will be temporary in nature.

There are no municipal or central water supplies or disposal systems present or planned.

2. Adverse Environmental Effects:

Removal of vegetation for road construction and building sites will occur to a limited degree. This is expected to be minimal. Soil disturbance caused by the above factors may cause some erosion if not properly conducted and measures taken to contain or control water drainage.

Any increase in human use will cause an increase in noise and vehicle traffic. It is not known what effect increased vehicle traffic will have on the access road leading from Highway 2 to the development area.

There will be a slight decrease in available wildlife habitat for species such as deer and grouse.

3. Alternatives considered:

   a. Not develop the subdivision: This would not permit the economic gain to the developer and would prevent the opportunity for families to enjoy seasonal home benefits.

   b. Provide pre-constructed dwellings and/or condominium complexes, including water systems, sewage and utility services: An intensive development such as this would probably prove to be excessively expensive and not economically feasible.

4. Short Term Versus Long Term Relationships:

The use of this area for a subdivision will preclude the future use of this area for livestock production (the present dominant use). The land use will change from grazing to seasonal home and related recreational uses. The latter being a more intensive use would thus contribute directly and indirectly to the economy of the East Glacier-Browning area. Increased taxable valuation would benefit Glacier County.

5. Irreversible and Irretrievable Commitment of Resources:

   Land used for roads, buildings and other construction will be lost to future use for other purposes. Vegetation removed will be lost, materials used in the construction of dwellings and other structures will be essentially lost for other uses, and energy sources used in development will be irretrievably lost.

   Wildlife habitat will be lost for future use.

IV. PUBLIC OBJECTIONS TO THE PROJECT, IF ANY, AND THEIR RESOLUTIONS

There are no public objections to this proposal.

V. AGENCIES CONSULTED ABOUT THE PROJECT

1. State and Federal Agencies:
   a. Montana State Department of Health and Environmental Sciences, Helena, Montana.
   b. United States Forest Service, Choteau, Montana.
   c. United States Department of Agriculture, Soil Conservation Service, Cut Bank, Montana.
   d. United States Bureau of Indian Affairs Tribal Council, East Glacier, Montana.
2. Local Agency and Representative's Name:

   Glacier County Attorney, Mr. Jack Moore, Cut Bank, Montana.
3. Subdivision is under control of the Glacier Board of County Commissioners. A preliminary plat has been presented to the Board and they have granted its approval (See Exhibit G).

ENVIRONMENTAL ASSESSMENT

To comply with Section 5 (4) (a), (b), (c), (d), Chapter 500, Montana Session Laws 1973, Senate Bill No. 208.

I. ENVIRONMENTAL ASSESSMENT

A. Surface Water

1. No streams are expected to be affected or changed because of the subdivision. However, there are two or three beaver ponds and an

adjacent marshy area within the subdivision. These wet areas will not be drained nor polluted and will add to the attractiveness of the area.

2. No surface water developments are planned.

3. No construction or modification of any stream or channel is anticipated.

4. None of the lots border on any stream or lake used for boating.

5. Some lots border or are adjacent to Railroad Creek. However, no serious threat from flooding is anticipated due to the extremely steep banks confining this stream. No building sites are within the 100-year floodplain.

6. No highwater marks are available. No flooding of any part of the subdivision is anticipated.

B. Groundwater

1. Two wells will be drilled in approximation to or on Lot 15 in Block 2 and Lot 5 in Block 4. The results of these wells and their yields will be submitted to the State Department of Health and Environmental Sciences immediately upon completion. It is anticipated that these wells will demonstrate the availability of water on the subdivision, as stated in a letter from Mr. W. O. Aikin to Mr. A. P. Keppner, dated February 24, 1974.

2. The north half of Section 29, Township 31, Range 12 lies within Quarternary Alluvium, a freshwater accumulation of silt, sand, clay and gravel, mixed and interbedded, normally unconsolidated or only weakly cemented. This formation usually yields small to moderate amounts of water and would be expected to provide ample water for domestic use in the subdivision.

   Terrace gravels (Quaternary/Tertiary) are widely distributed in Glacier County and occur as small isolated patches and large remnants of fluvial deposits. There are several terrace levels, flat topped, gently sloping away from the mountains. The highest benches are near the mountain front and now rise hundreds of feet above present streams. The larger gravel remnants are sources of groundwater, and wells yield 1 to 25 gallons per minute, depending upon gravel thickness. Many of the springs in Glacier County discharge from terrace gravels.

   Glacier Drift aquifer may furnish small amounts of water locally, but is basically impervious clay.

   If wells prove unsatisfactory for water supply, lot owners will install approved cisterns or inside water tanks. Water is available from East Glacier, approximately two miles distant. (See Exhibit I.).

C. Topography

1. Percent of area in each slope category is given in the following table:

SLOPE (Percent)	PERCENT OF AREA
0-2	20
2-10	25
10-20	25
Over 20	30

2. No major cuts and fills will be necessary. Minor cuts and fills will be necessary for road construction, but roads will be constructed on contours requiring very minimal cuts and fills. Culverts will be used as needed in some areas, but these can be placed with no major fills required.

3. Any areas disturbed will be seeded to native grass species, rip-rapped, or graveled to prevent soil erosion.

D. Vegetation

1.& 2. Vegetation types are delineated on Exhibit A-1 and are described as follows with the predicted impact for each type:

Map Symbol	Description
R.T.	Ridge Top: This zone exhibits a pronounced effect from the strong, frequent winds which occur in this area. The vegetation consists primarily of grasses with a fair number of low, distorted limber pine (*Pinus flexilis*), or whitebark pine (*Pinus albicaulis)*. There are also large patches of bare ground as a result of wind erosion. Impact: This type is very fragile and subject to high winds and consequent erosion. Extensive erosion has taken place in past years. No man-caused disturbance will be permitted.
B.L.	Bottom Lands: These zones follow the several small, mostly intermittent streams which flow through the subdivision. The vegetation varies from dense stands of shrubs, such as thinleaf alder *(Alnus incana)* and willow *(Salix* spp.*)* to stands of douglas-fir *(Pseudotsuga menziesii)*, with an understory of shrubs and grasses which line the steep slopes bordering the streams. Impact: This type is important to prevent soil erosion during precipitation runoff, and it is therefore important that only necessary disturbances occur. Access roads or building sites located within this type should be constructed with care, and exposed areas reseeded immediately to adapted native grass and shrub species.
G.L.	Grass Lands: These generally occur in the lower, more level areas, and consist of native grasses and forbs which have been heavily grazed this past summer.

Map Symbol	Description
G.L. (Continued)	Dominant species include rough fescue *(Festuca scabrella)*, bluebunch wheatgrass *(Agropyron spicatum)*, and needle and thread *(Stipa comata)*. Impact: Disturbance of this area is not particularly critical. However, any areas disturbed should be reseeded to the above native species to the extent practicable.
A.T.	Aspen Type: This occurs in mesic areas and consists of a fairly solid overstory of quaking aspen *(Populus tremuloides)* and some understory shrubs, such as thinleaf alder and black hawthorn *(Crataegus douglasii)*. Impact: These species are very susceptible to disturbance and some of them would be removed by construction of roads and/or building sites. Any exposed soil should be protected by reseeding to native grass species or graveled (in the case of roads and driveways).
C.F.	Conifer Forest: This zone covers the north face of the ridge which crosses the subdivision. The predominant overstory species is lodgepole pine *(Pinus contorta)* with some douglas fir, and fir *(Abies* spp.). Thinleaf alder is also common through this zone as an understory shrub, along with some willow, Canadian buffalo-berry *(Shepherdia canadensis)*, and others. Impact: This rather extensive type offers an aesthetically appealing setting for seasonal dwellings. Only that area actually needed for access roads, drives and building sites should be disturbed. Exposed areas, including small cuts and fills, should be reseeded with native grass species.

E. Wildlife

1. The subdivision contains several important wildlife species including: mule deer *(Odocoileus hemionus)*, white tail deer *(Odocoileus virginianus)*, ruffed grouse *(Bonasa umbellus)*, blue grouse *(Dendrapapus obscurus)*, beaver *(Castor canadensis)*, mink *(Mustella vison)*, and several species of waterfowl and shorebirds. Insectivorous birds are found during migration.

   Impact: Any area disturbed or vegetation destroyed will limit the amount of habitat available and, consequently, exert a detrimental effect upon wild species. However, the total amount of disturbance is anticipated to be small, and only a minor effect will occur to indigenous species. Human activity may cause some species such as deer and grouse to move away from dwellings, but this is expected to be neglibigle as far as the surrounding populations are concerned.

2. Aquatic species are expected to show little or no effect, as no drainage of wet areas will be permitted. No enhancement of habitat is anticipated. There are no critical habitat areas occurring within the subdivision.

F. Soils

1. Soil types of the area are shown on Exhibit B. A detailed description of these soils in relation to construction, road building, drainage, and other characteristics is given in a report by the Soil Conservation Service of Glacier County.

2. There are no proposed restrictions on types of buildings which may be constructed. No buildings with basements are anticipated.

   Most areas contain soils which would provide for reasonable lawns or landscape plantings.

G. Geology

1. Most of Glacier County is within the influence of former glacial activity. The Continental Glacier (1 million years ago), and the Alpine Glacier (10 thousand years ago) both left their influence upon the land forms and soils. As is typical of such areas, they vary widely in mixtures of silt, sand, gravel, boulders and clays.

   Judging from present roads constructed in the area, and also residences nearby, there is no critical building or construction situation anticipated. Roads will be graveled, and no basements, as such, are contemplated.

   No effects are anticipated upon the total geological complex of the area by development of the subdivision. Percolation test logs are shown in Exhibit D.

II. COMMUNITY IMPACT REPORT

A. Water

1. It is expected that individual wells will provide water for the dwellings and other domestic uses. There is no municipal or central water system planned for the area. Wells will be dug and developed within guidelines set forth by the State Department of Health and Environmental Sciences. Cisterns may also be used (See Section I (b) of this report).

2. It is anticipated that sufficient water is available from individual wells. Water is also available at East Glacier for lot owners who install cisterns or use indoor storage tanks.

3. All water developments, including wells, will meet Health Department standards. The water supply at East Glacier is an approved system.

4. Not applicable. No centralized water system is planned.

5. Not applicable.

6. Each owner will be responsible for his own water supply system costs including digging wells or obtaining water from East Glacier.

7. Each individual will maintain his own water supply system.

B. Sewage Disposal

1. Methods of sewage disposal and waste water disposal will be as follows:

    a. Septic tanks and drainfields will be allowed for Lots in Blocks 1, 3, 4 and all Lots in Block 2 except 3 and 4, and Lots 1, 2, 23, 24, 25, 26 in Block 5.

    b. Lots 2 and 3 in Block 2 and Lots 3 through 22 in Block 5 will be restricted to the following methods of disposal:

        (1) Approved type pit privies.

        (2) Incinerator type toilets and seepage pots for disposal of white waste water.

        (3) A seepage pot for disposal of white waste water will be allowed for those owners choosing to construct approved pit-type privies in lieu of the incinerator-type toilet.

2. These methods are sufficient to meet the needs of the completed subdivision.

3. All systems meet State Board of Health specifications.

4. Not applicable. No centralized sewerage system is planned.

5. Not applicable. No centralized sewerage system is planned.

6. Not applicable. No centralized sewerage system is planned.

C. Solid Waste Disposal

1. Each owner will be responsible for his own solid waste disposal. There is a solid waste dump at East Glacier, and lot owners can use the facility. (See Exhibit H.).

2. This system will be adequate for the subdivision.

3. This method meets state standards as far as the subdivision is concerned. East Glacier would be responsible for the solid waste dump that it operates.

4. Not applicable to subdivision. East Glacier will administer the city dump.

D. Drainage

1. Synopsis:

    a. Surface runoff will be carried off in existing natural drainages. Culverts and borrow ditches along roads will be provided. No other system or method is necessary.

    b. All disturbed areas will be seeded to native grass species or graveled.

    c. All costs of erosion control and drainage from road construction will be paid by the developer.

d. The developer will construct all access roads.

e. No corrective work will be necessary to construct buildings or other structures.

f. Highest lot elevation: 5,140 feet
Lowest lot elevation: 4,500 feet

2. No plan for storm drainage is necessary.

3. No plan for erosion control exists or is needed, except for that stated in 1 (b) above.

E. Roads

1. Access roads locations are shown on the attached map (See Exhibit A). Each access road is constructed joining the public road shown on Exhibit A. Turn-arounds are provided at the "dead end" of each access road. Roads will be surfaced with gravel.

2. Roads are constructed and paid for.

3. Installation costs of road construction were paid by the developer. The maintenance costs will be paid by each owner.

a. Not applicable. No roads will be dedicated.

4. Increased traffic generated because of the subdivision is estimated to be about 200 to 300 vehicles per day, maximum, at full development. This will not appreciably affect the existing traffic on connecting roads and highways in the area.

5. Existing roads and streets can safely handle the increased traffic.

a. Immediately after heavy snowfall, grading may be necessary on the East Glacier-Heart Butte road, but no special or extra grading should need to be accomplished. It may be necessary to gravel that portion of the road which falls within the subdivision and perhaps the entire road from the subdivision to Highway 2.

6. No. Some lots cannot be reached in winter with conventional vehicles. However, the entire development is recreation oriented, and as such, most owners will be present only during summer.

7. Access is by public road to the subdivision and then by private road to each individual lot.

8. Each lot owner owns the portion of private road bordering his property and is responsible for maintenance of that portion of road.

F. Utilities

1. The preliminary plan has been discussed with the electric power company, and

2. electricity will be furnished to the subdivision area. See Exhibit F for verification. No gas or telephone is available.

3. Street lighting will not be furnished.

4. Utilities (electricity) will be furnished as lots are purchased. The developer will bring lines to the subdivision.

G. Emergency Services

1. The nearest police or sheriff protection and hospital facilities are at Browning, Shelby and Cut Bank. No fire protection exists.

2. During the summer months, there is a doctor at East Glacier with complete hospital facilities at Shelby and Cut Bank. Otherwise, the development is typical of a rural area in Montana.

H. Schools

1. No schools exist in the vicinity except at East Glacier and Heart Butte. However, because the development is a seasonal (summer) type situation, no school facilities are necessary for lot owners.

2. No school children will be generated for the area because of the subdivision.

3. Yes, if any exist.

4. Yes, as there are no anticipated extra students who would be attending the school in East Glacier because of the subdivision.

I. Parks and Recreation Facilities

1. None proposed in the subdivision. The land within the development is excellent recreational land and affords opportunity for outdoor activities typical of such a development. Glacier Park is approximately three miles northwest of the area.

2. No public access to any public lands is affected by the subdivision.

J. Tax Revenue

1. The tax revenue for the area before development (1973) was $48.04. Estimated tax revenue for 1974 will be $617.66.

   a. Anticipated range of residential valuation is unknown but probably between $5,000 and $30,000.

   b. It is not possible to estimate the total valuation of the development at present. These figures will be available from the Glacier County treasurer or assessor as construction and development progresses.

K. Nuisances and Safety Factors

1. There are no nuisance or pollution factors present, except at East Glacier, a distance of about three miles to the northwest. There are no industrial developments which would be expected to have any adverse effect upon the subdivision residents. The Burlington Northern Railroad passes through East Glacier within three miles of the subdivision, and this could cause a minor noise disturbance.

2. No hazards of unusual nature exist in or around the subdivision.

3. Some of the lots are adjacent to and include wetlands and wet ground. However, each lot contains an area of sufficient size to provide a residential site separate from such wet areas. The presence of these aquatic environs add to the aesthetic appeal of the area.

4. No natural hazards exist which cannot be insured for.

5. Weather is characterized by cool summers, cold winters, and strong westerly winds. Heavy snow and blowing snow occurs frequently in the area during the winter months. Ground blizzards are not uncommon to the area. The average date of the last killing frost at Browning is June 6th. The average date of the first killing frost is September 7th. At elevations above 4,300 feet, these dates may be closer to each other. The area is subject to late afternoon and evening thundershowers, and precipitation is highly variable.

6. Annual precipitation ranges from 100 inches in the higher mountains to about 12 inches in eastern Glacier County. Chinook winds are common to the area. Winds exceeding 70 to 90 miles per hour have been recorded in the vicinity. Although these extremes exist, the general weather is considered normal for this part of the state. Considerable drifting and heavy snow accumulation can be expected on all northerly and easterly facing slopes.

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U.S. DEPARTMENT OF AGRICULTUR
SOIL CONSERVATION SERVICE

INVENTORY & EVALUATION

[✓ INDIVIDUAL]
* GROUP
UNIT OF GOVERNMENT

REQUESTED BY Ecological Consulting Service (Billy Big Springs, et. al.) LOCATION East Glacier, Montana

ASSISTED BY Ray Parker, Soil Conservation Service DATE November 1973

SITUATION: Proposed housing subdivision. N^{2}29-T31N-R12W.
(1 1/2 miles south of East Glacier)

SUGGESTED SOLLUTION(S): Severe limitations. See attached writeup.

*CIRCLE APPROPRIATE CATEGORY.

I. This is an inventory and evaluation of the soils on the N^2-29-T31N-R12W prepared for Billy Big Springs, et. al. at the request of Ecological Consulting Service, Helena, Montana. The proposed use is for a housing subdivision. Reproduction of the Soil Survey has been furnished previously - this writeup is to provide a basis for interpretation by Ecological Consulting of those photos.

I. The area involved is approximately one and a half miles south of East Glacier. Examination of a topographical map shows almost the entire area is a north-facing slope with elevation ranging from about 4,700 feet to over 5,100 feet. Almost all of the area is forested. The annual precipitation of East Glacier is just over 30 inches of precipitation a year. This combination of factors means that it is a high snow accumulation area with the snow staying late into the spring before melting out. The snow accumulation presents access problems to any home in the area and a high snow load design problem in the houses themselves.

I. The soils present in the area are:

581EF - Doby - shale outcrop complex, very steep
185CE - Babb-Hanson complex, hilly
389CE - Adel-Babb complex, hilly
92CE - Swifton and Garlet soils, hilly
192EF - Swifton-Rockland association, very steep

The numerical portion of the soil symbol denotes the soil that is delineated. The alphabetical portion of the symbol indicates the slope ranges of the topography within the delineation. The slopes present here are:

C - 4 to 8 percent
D - 8 to 15 percent
E - 15 to 25 percent
F - 25 to 45 percent

Percent of slope is the rise or fall in elevation each one hundred feet.

The term complex in the soil's name means that there are two distinct soils present within the delineation but that they are so intermingled that it is not feasible to map each one separately. It requires a field examination to determine the soil at any given point in a complex. Identification features are given in the respective soils description following.

Adel Series

The Adel soil consists of well-drained soils formed in accumulation positions. Percent material is mixed alluvium, glacial till, and loamy sedimentary bedrock. Typically, a profile consists of a thick, black, loamy A1 horizon (0-14") over a thick, dark B horizon (14-38") that lacks clay accumulation and structural development. A weak lime zone is sometimes present below 3 feet.

The Adel differs from the Babb by lacking the texture and structure development of the B horizon.

Babb Series

The Babb series consists of well-drained soils formed in accumulation positions. It was developed from loamy parent material of glacial, alluvial and bedrock sources. The typical profile is characterized by a thick, dark, loamy A1 horizon (0-18") over a brown, blocky clay loam or silty clay loam B2 horizon (18-37") which is leached by lime to 3 feet or more.

The Babb series differs from the Adel by having a more highly developed texture and structure in the B2 horizon.

Doby Series

The Doby series developed in heavy clay loams to clay shale parent materials. A typical profile has a moderately thick, dark colored A1 horizon (0-12") which is partly mantle material of glacial origin overlying high fractured hard weathering clay loam shales. These soils are not extensive but occur in complex with several soils in the disturbed belt along the mountains. The soil is generally well drained but perched water may be present in the fractured shale substratum in local areas and this would be slow to drain away in the spring.

Garlet Series

Garlet soils are noncalcareous, very gravelly soils. The depth of the soil profile is usually the depth of the soil. Fractured bedrock occurs at 60 to 80 inches. They are associated with steep mountain slopes and were developed under a boreal conifer forest with a shrub-grass understory.

Infiltration rate is high and permeability of the soil is rapid.

Hanson Series

The Hanson soils developed in limestone glacial till and outwash deposits. It is characterized by a high proportion of coarse fragments, a thin A1 horizon and a prominent lime horizon within 15 inches of the surface.

Rockland - Rock outcrop areas

Shale Outcrop - Shale outcrop areas

Chart I - Physical and Chemical Properties of the Soils

Chart II - Engineering Properties - Degree and Kind of Limitations

TABLE I. Physical and Chemical Properties of Soil N^2 29-T31N-R12W

Soil Series and Map Symbols	DEPTH TO: Bedrock, gravel,etc.	Seasonal Water Table	Depth from Surface	USDA Texture	Permeability	Reaction	Salinity	Shrink Swell-Potential	Frost Action Potential	Corrosivity Untreated Steel	Corrosivity Concrete
	(Inches)	(feet)	(Inches)		(Inches per hour)	pH	mmhos/cm				
Doby (part of 581EF)	20"	5'+	0-13"	light clay to clay	0.2-0.6	6.6-7.5	none	Moderate	High	Moderate	Low
			13-19"	shaley clay	0.2-0.6	7.4-7.8	Slight	Moderate	High	High	Moderate
			19+	hard clayey shale							
Shale outcrop (part of 581EF)	TOO VARIABLE TO CLASSIFY										
Babb (part of 185CE)	5'+	5'+	0-21"	cobbly loam	0.6-2.0	6.6-7.3	None	Low	High	Moderate	Low
(part of 389CE)			21-60"	cobbly loam	0.6-2.0	7.4-7.8	None	Low	High	High	Low
Hanson (part of 185CE)	5'+	5'+	0-15"	stony loam	2.0-6.0	6.6-7.4	None	Low	Low	Low	Low
			15-32"	stony loam	2.0-6.0	7.9-8.4	None	Low	Low	High	Low
			32-60"	stony loam	2.0-6.0	7.4-7.8	None	Low	Low	Moderate	Low
Adel (part of 389CE)	5'+	Small area 4-5'	0-30"	loam	0.6-2.0	6.1-6.5	None	Low	High	Low	Low
			30-60"	loam	0.6-2.0	6.6-7.3	None	Low	High	Low	Low
Swifton (part of 92CE and 192EF)	5'+	5'+	0-39"	gravelly loam	0.8-2.5	4.5-5.5	None	Low	Moderate	Low	High
				gravelly sandy clay loam	0.8-2.5	6.0-7.8	None	Low	High	Low	Low
Garlet (part of 92CE)	5'+	5'+	0-19"	stony loam	2.0-6.0	6.1-6.5	None	Low	Low	Very low	Moderate
			19-70"	stony loam	2.0-6.0	7.4-8.4	None	Low	Low	Low	Low
Rockland (part of 192CE)	TOO VARIABLE TO CLASSIFY										

TABLE II. Engineering Properties - Degree and Kind of Limitation

	Septic Tank Absorption Field	Shallow Excavations	With Basements	Without Basements	Local Roads and Streets	Paths and Trails	Picnic Areas and Campground	Roadfill
Adel (part of 389CE)	Moderate: 8-15% slopes; Severe: 15%+ slopes	Moderate: 8-15% slopes; Severe: 15%+ slopes	Moderate: poor bearing capacity; 8-15% slopes; Severe: 15%+ slopes	Severe: high frost action potential; poor bearing capacity 8%+ slopes	Severe: high frost action potential; 8%+ slopes; high compressibility	Slight: 8-15% slopes; Moderate: 15-25% slopes; Severe: 25%+ slopes	Moderate: 8-15% slopes; Severe: 15%+ slopes	Poor: high frost action potential; high organic matter content in upper 2 to 3 feet
Swifton (part of [illegible]CE and 192EF)	Moderate: 8-15% slopes; permeability 0.2-2.0"/hr. Severe: 15%+ slopes	Moderate: 8-15% slopes; gravelly and cobbly soil; Severe: 15%+ slopes	Moderate: 8-15% slopes; fair bearing capacity; Severe: 15%+ slopes	Moderate: 8-15% slopes fair bearing capacity Severe: 15%+ slopes	Moderate: 8-15% slopes; moderate frost action potential; Severe: 15%+ slopes	Moderate: 8-25% slopes; 20-30% gravel; Severe: 25%+ slopes	Moderate: 8-15% slopes; 20-40% gravel; Severe: 25% slopes	Fair: 8-25% slopes; Moderate frost action potential; Poor: 25% slopes
Garlet (part of [illegible])	Moderate: 8-15% slopes Severe: 15%+ slopes (Ground water pollution may be a problem)	Moderate: 8-15% slopes Severe: 15%+ slopes (Ground water pollution may be a problem)	Moderate: 8-15% slopes; Severe: 15%+ slopes (Ground water pollution may be a problem)	Moderate: 8-15% slopes Severe: 15%+ slopes (Ground water pollution may be a problem)	Moderate: 8-15% slopes Severe: 15%+ slopes (Ground water pollution may be a problem)	Moderate: stony soil with 8-25% slope; Severe: 25%+ slopes	Moderate: stony soil with 8-15% slopes; Severe: 15%+ slopes	Good 8-15% slopes Fair. 15-25% slopes Poor 25%+ slopes
Rockland (part of [illegible])	TOO VARIABLE FOR INTERPRETATION							

	Septic Tank Absorption Field	Shallow Excavations	With Basements	Without Basements	Local Roads and Streets	Paths and Trails	Picnic Areas and Campground	Roadfill
Loby (part of 581CE)	Severe: shale at less than 20"	Moderate: shale hard to dig; slopes 4-15%; Severe: slopes 15-35%	Moderate: slopes of 4-8%; hillside slippage; Severe: slopes 8-35%	Moderate: slopes of 4-8%; moderate frost action potential; hillside slippage; Severe: slopes 8-35%	Moderate: slopes of 4-15%; shrink-swell and frost action potential; Severe: slopes 15-35%	Moderate: clay loam surface; slopes 4-25%; Severe: slopes 25-35%	Moderate: clay loam surface; slopes 4-15%; Severe: slopes 15-35%	Poor: less than 20" to shale; slopes 25-35%
Shale outcrop (part of 581CE)					Difficult to cut			
Babb (part of 185CE and 389CE)	Moderate: slopes 8-15% Severe: slopes over 15%	Moderate: slopes 8-15% Severe: slopes over 15%	Moderate: fair to poor bearing capacity slopes 8-15% Severe: slopes over 15%	Severe: high frost action potential; low bearing capacity	Severe: high frost action potential; medium compressibility; slopes over 15%	Slight: slopes 8-15% Moderate: slopes 15-25% Severe: slopes over 25%	Moderate: slopes 8-15% Severe: slopes over 15%	Poor: high frost action potential; medium compressibility
Hanson (part of 135CE)	Slight: on slopes less than 8% if tile is placed below 30 inches Moderate: 8-15% slopes Severe: 15%+ slopes	Moderate: 2-15% slopes; cobbles and stones Severe: 15%+ slopes	Moderate: 2-15% slopes; cobbles and stones Severe: 15%+ slopes	Slight: 2-8% slopes; Moderate: 8-15% slopes Severe: 15%+ slopes	Moderate: 9-15% slopes; 34-45% fines; medium compressibility; Severe: 15%+ slopes	Moderate: 20-40% coarse fragments; slopes 2-25% Severe: 25%+ slopes	Moderate: 20-40% coarse fragments; slopes 2-15% Severe: 15%+ slopes	Good: 2-15% slopes Fair 15-25% slopes Poor: 25-35% slopes

C O P Y

EXHIBIT D

Percolation test for Glacier Acres - October 15 to October 19, 1973. Located one mile west of East Glacier, Montana. All holes 24 to 30 inches deep, saturated overnight.

Drop for final 20 minutes over four hours:

Lot	Block 1
1	4"
2	4"
3	3 3/4"
4	2 1/2"
5	2 "
6	2 1/2"
7	2 3/4"
8	4"
9	3"
10	2 1/2"
11	2 3/4"
12	2"
13	2 1/4"

Lot	Block 2
1	2 1/2"
2	2 1/2"
3	2 1/4"
4	1 3/4"
5	1 1/2"
6	1 1/4"
7	1 3/4"
8	2 "
9	1 1/4"
10	1 1/2"
11	1"
12	1 1/2"
13	1/14"
14	2"
15	1/12
16	1 1/4"
17	1 1/4"
18	2"
19	2"
20	2 1/2"
21	2 1/4"
22	2"
23	1 3/4"
24	2 3/4"
25	3"
26	3"
27	4"
28	4"
29	4"
30	4"
31	3 1/4"
32	4"
33	5"
34	5"
35	4 1/2"
36	4 3/4"
37	5"

Lot	Block 3
1	4 1/2"
2	4 3/4"
3	4"
4	5"
5	6"

Lot	Block 4
1	4"
2	5"
3	6"
4	6"
5	4"
6	3 1/2"
7	2 1/2"
8	2 3/4"
9	3"
10	2 3/4"
11	2 1/4"
12	2 1/4"
13	2 1/2"
14	2"
15	2"
16	2"
17	2"
18	2"
19	2"
20	1 1/2"
21	1 1/4"
22	1 1/2"
23	1 3/4"
24	2"
25	2 1/2"

Lot	Block 5
1	2 3/4"
2	2 1/2"
3	2 3/4"
4	2"
5	2"
6	2"
7	2 1/2"
8	2 3/4"
9	2 1/2"
10	2 1/4"
11	2"
12	1 3/4"
13	2"
14	2 1/4"
15	2 1/2"
16	2"
17	2"
18	2"
19	1 3/4"
20	1 1/2"
21	1 3/4"
22	2"
23	2"
24	1 3/4"
25	1 1/2"
26	2"

MONTANA DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

An Addendum
to
The Environmental Assessment
prepared by
Ecological Consulting Service, Inc.
for
Glacier Acres Subdivision

Statement of Information Regarding Water and Sewerage Service for Realty Subdivisions:

I.(6)(a) Proposed method of supplying water.

(1) A test well has been drilled on the proposed subdivision on the 14th of March, 1974 by Doug Mendenhall of Great Falls. The driller's log is reported as follows:

Top of Ground From (feet)	To (feet)	
0	7	Top soil
7	21	Gravel and Sand
21	34	Blue Clay
34	42	Shale
42	46	Hard Sandstone
46	52	Black Sand

This hole was drilled by hand auger only as for a test. The formation test pumped 7 to 9 gallons per minute for approximately 45 minutes. When I pulled test hose from hole, the top gravel fell in and I lost approximately 26 feet of hose down the hole.

This test well was drilled in the vicinity of Lot 5 in Block 4. Another test well in the vicinity of Lot 15 of Block 2 will be required some time in the future if wells are to be considered as an approved source of potable water.

(2) It is possible to use cisterns as an approved water supply. Exhibit I that confirms the willingness of the Glacier Park Company to furnish water has not been submitted. An approved method of transporting the water has not been proposed.

A statement from the General Counsel of the Blackfeet Tribe has been filed with the department. Its contents in essence is as follows:

Following is the statement of the Blackfeet Tribe relative to the proposed subdivision above referred to; it is my understanding that this may be a preliminary statement and that I as attorney for the tribe will be allowed to make further comments.

The purpose of this statement is to show that the proposed subdivision conflicts directly with several ownership rights and planning efforts of the Blackfeet Tribe.

First, the Blackfeet Indian Reservation contains approximately 1.5 million acres in Northwestern Montana. The proposed subdivision lies entirely within the exterior boundaries of the Reservation, and is therefore subject to zoning and other planning efforts of the Tribe. Article I of the Constitution of the Blackfeet Tribe states that the jurisdiction of the Tribe extends to all territories within the boundaries of the reservation.

Secondly, the Tribe claims absolute ownership of the right to the use of water arising on, bordering, underlying, traversing, the Indian Reservation. This claim is based on rights aboriginal in nature and also on a family of legal precedents and cases beginning with the U. S. Supreme Court decision of Winters v. U. S., 207 U. S. 564. There is absolutely no question of the right of the various Indian Tribes to the first and paramount right to the use of water arising on, etc. as stated in the Winters case. This necessarily encompasses ground water, surface water and all water which potential subdivision applicants would have to look to for water sources and for disposal of waste.

It is the contention of the Tribe that a subdivision applicant cannot, in light of the above stated legal precedent, establish any right to the use of any water on the Blackfeet Reservation, except by privilege or permit granted by the Blackfeet Tribal Business Council. The Blackfeet Tribe has issued no permit to the owners of the real property covered in the application for the subdivision called Glacier Acres, here in question. It is the stance of the Tribe that applicants for such a subdivision cannot withdraw water from wells within the exterior boundaries of the Reservation without express approval of the Tribe.

The Tribe has therefore the absolute right to control the use of all surface and ground water as above stated.

Case law, well established, defines the right of the various Indian Reservations to the undiminished supply of pure and unpolluted water in accordance with the Winters case. Any pollution, therefore, of water on the reservation is a violation of legal precedent and subject to injunctive relief in favor of the Tribe. The Blackfeet Tribe has, in fact, recently instituted and brought to a successful conclusion such litigation.

Third, the Department of Interior has recognized the right of the Tribes to regulate their natural resources. This includes all natural resources such as wild life, water, and recreational areas.

The Blackfeet Tribe recently has passed an interim zoning ordinance and a comprehensive code of zoning ordinances which the applicants in the Glacier Acres Subdivision have

> *completely circumvented and ignored. The zoning ordinance and code provide criminal penalties for violators. These zoning ordinances regulations provide that the area encompassed by Glacier Acres is to be left in a natural state, meaning of course no form of commercial or recreational construction.*
>
> *Lastly, The Blackfeet Tribe has the right to deny access and easements across tribal lands and streams. The proposed subdivision would have to apply for these rights of access and easements. At present, such applications would be summarily denied because of the list of violations attributable to this subdivision application.*
>
> *We expressly reserve the right to make further comments on these matters.*

It should be noted that the matter of water availability is in serious doubt at this time.

I.(7)(a) Sewerage Service

A field inspection was made the 6th of February, 1974 by Wilbur O. Aikin, registered professional engineer and economic geologist. The comments made with respect to sewage disposal and topography stemming from this field investigation are as follows:

SEWAGE AND TOPOGRAPHY

A. Block 4, Lots 1 through 25
Sites are totally without criticism. They should lend themselves to homesite very well.

B. Block 2, Lots l through 37
Most of these lots are excellent; however, several are close in to a beaver pond and/or spring bog (Lots 3 and 4) which may create seepage problems. If the (septic tank) permit system is enforced here, the lots are usable. But the disposal area is limited and builders will need help from the county sanitarian if drainfields are to be fault-free.

C. Block 3, Lots 1 through 5
Same comments as those for Block 2, above. Lot 5 is an obvious access problem but it is also larger than 10 acres.

D. Block 1, Lots 1 through 13
The south half is without criticism (Lots 1 through 7), but the back half will be difficult to utilize if only because of steep access roads and a very irregular series of random slopes. I could not get down into this area; however, the general topographic pattern was visible from the rim above.

I might add that on the north half of the entire subdivision the contour lines are misleading. Slopes are not at all even, but are very abrupt in "bad-lands" like fashion. Benched areas such as this often have adequate building sites, but getting to them is an obvious difficulty. If it were necessary for the roads to be brought to county standard and dedicated, Lots 8 through 13 would have to be redesigned.

E. Block 5, Lots 1 through 26

Lots 25 and 26 are clearly without criticism. The balance of this block (Lots 1 through 24) would be either filed as a single large block, deleted from the submittal, or platted to larger lot size. The area has virtually nothing in common with the rest of the subdivision. Slopes are steep, building sites will probably be restricted to locations near the road, and the lot frontages (200 plus feet is the average) provide very little available space for meeting state standards without extraordinarily difficult road construction.

A special restrictive covenant might be possible for these steep lots. Pit privies or incinerator toilets with white water seepage pits might be adequate providing they are approvable. However, special consideration will be an absolute necessity if these lots are to be built on without environmental problems occurring. It approved, the developers should be asked to define a specific utilization format for use on all the lots. It is also extremely likely that the subsurface structuring may be just as difficult from the rest of the subdivision as the surface topography is. If true, assumptions made with regard to water supply (by the demonstration drilled wells) in the rest of the subdivision may not be at all true in this sidehill area.

It is my feeling that this block should be left undivided until the problems of the entire area are encountered and solved. Then the block might be submitted at a later date with a new layout design firmly fixed around information gained in the main development.

I(8) Drainage and Runoff - Streets and Roads

As noted under sewage and topography, if it were necessary for roads to be brought to county standard and dedicated, several lots would have to be redesigned.

II. Existing Ecological Conditions

5. Information on additional water table information in low-lying areas has not been submitted to date.

III. Environmental Assessment

(3) Alterates Considered

These are not all the alternates that are available to the department. They will be discussed later in this addendum.

IV. Public Objections to the Project

There have been objections to this project expressed by the Blackfeet Tribe. Tribal Resolution 79-73 and correspondence from the Blackfeet Tribe addressed to William Big Spring, Ray Bauer and Dr. Robert Casey assert this opposition on the basis of violation of tribal zoning laws.

COPY

THE BLACKFEET TRIBE
of the Blackfeet Indian Reservation

Browning, Montana
Zip 59417

March 18, 1974

Mr. Ray E. Bauer and
Dr. Robert J. Casey
dba Glacier Acres
3841 4th. Avenue South
Great Falls, Montana

Gentlemen:

It has come to the attention of the Blackfeet Tribal Business Council that you are planning a subdivision in an area near East Glacier, Montana within the exterior boundaries of the Blackfeet Reservation and more particularly described as: the North ½ of Section 29, Township 31 North, Range 12 West, P.M., Glacier County. This is to inform you that the Blackfeet Tribe has passed a comprehensive set of zoning ordinances for all land on the Blackfeet Reservation. Section 18.40 of this ordinance zones the area described above as an area to be left in the natural state and specifically prohibits the use of commercial or residential subdivisions.

This letter is to put you on notice of the Blackfeet zoning laws. If you have any questions concerning this matter, please contact me at my office in Browning, Montana.

Sincerely yours,

/s/ Philip E. Roy

Philip E. Roy
General Counsel
Blackfeet Tribe

PER:sw
cc: Glacier County Board
of Commissioners
John P. Moore
Montana Dept. of Health
and Environmental Sciences

ENVIRONMENTAL ASSESSMENT

I. Environmental Assessment

A. Surface Water

As noted previously, caution must be exercised in the review of proposals for sewage disposal facilities in the vicinity of the beaver ponds.

B. Groundwater

As noted previously, one test well has been drilled. The reluctance of the Blackfeet Tribe to issue a permit for the use of their groundwater resources by those financially concerned with the proposed Glacier Acres Subdivision would indicate the unavailability of potable water. The Exhibit I that confirms the availability of water from East Glacier has not been received. No approved method of transporting water has been proposed.

C. Topography

It should be noted that most of the slopes over 20 percent are generally steeper than 50 percent.

I. Community Impact

C. Solid Waste Disposal

Exhibit H has been received from the Glacier County Commissioners giving permission for the proposed Glacier Acres Subdivision and those who would purchase lots in said subdivision to use the solid waste disposal facility at East Glacier, Montana, for disposal of solid waste materials generated by and in the proposed subdivision. It should be noted that this facility is nothing more than an open burning dump and closure is under consideration by state and local authorities.

F. Utilities

Exhibit F has been received from Glacier Electric Cooperative, Inc. stating that electric power is available for the proposed Glacier Acres Subdivision and that they will provide same as required when necessary.

Alternatives Available to this Department

1. Approve the subdivision plat as submitted. Due to present circumstances, the exercise of this alternative at this time is precluded by the following:

   a. This proposed development is within the exterior boundaries of the Blackfeet Reservation. It appears that ownership and control of all surface and ground waters within the exterior boundaries of the Blackfeet Reservation are invested to the Blackfeet Tribe. This raises serious doubt as to the availability and dependability of a water supply to the proposed development.

b. The local planning and zoning authority (the Blackfeet Tribal Business Council) is in opposition to the proposed project and does not deem it prudent to grant a preliminary subdivision approval. Until this position is altered in favor of those with a vested economic interest in the proposed development, the Department of Health and Environmental Sciences deems it prudent to defer further action. Additional expenditure of public resources in the area of subdivision review would be futile at this time.

c. Lots 1 through 26, Block 5, appear to be unacceptable with respect to sewage disposal.

d. The results of groundwater studies on the lots adjacent to the beaver ponds must be submitted and evaluated before approval of the lots in question can be considered.

e. It should be ascertained whether roads affecting lots in Block 1 need to be brought to county standards and consequently necessitate the redesign of Lots 8 through 13.

2. Refuse to approve the subdivision plat as submitted. Due to circumstances enumerated in number 1 above, consideration should be given to this alternative.

3. Grant subdivision plat approval on portions of the property that can meet department requirements with respect to water supply, sewage disposal, solid waste disposal and water quality. Until questions of zoning and water rights with the Blackfeet Tribe are resolved, the department cannot consider implementation of this alternative.

This statement was prepared by Alfred P. Keppner, B.S.F., M.S., Soils Scientist, with information furnished by Ecological Consulting Service, Inc.; Big Spring Enterprises; U. S. D. A. Soil Conservation Service; Wilbur O. Aikin, Professional Engineer and Economic Geologist; and the Blackfeet Tribal Business Council.

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STATE DOCUMENTS

Glacier

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

MAY 29 1974

May 20, 1974

Board of County Commissioners, Courthouse, Cut Bank
City-County Planning Board, Courthouse, Cut Bank
G. D. Waller, M.D., County Health Officer, Cut Bank
Mike Clasby, Sanitarian, Courthouse, Conrad
Environmental Quality Council, Helena
Fish and Game Department, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Dave Nunnallee, Branch Office, Box 1031, Kalispell
Student Environmental Research Center, Room 212 Venture Center, Missoula
Montana State Library, Helena
Rick Graetz, Box 894, Helena
Philip E. Roy, Attorney at Law, Box 849, Browning
Blackfeet Indian Tribal Offices, Browning
U. S. Department of the Interior, Blackfeet Indian Agency, Browning
Blackfeet Planning Commission, Browning
U. S. Department of Interior, National Park Service, Glacier National Park,
    Superintendent's Office, West Glacier
Glacier Park, Inc., East Glacier
John P. Moore, Attorney, 13 East Main, Cut Bank
Glacier County Clerk and Recorder, Courthouse, Cut Bank
U. S. Department of Agriculture, Soil Conservation Service, 24 West Main,
    Cut Bank
U. S. Department of Agriculture, Forest Service, 414 Main Avenue S., Choteau
U. S. Department of Agriculture, Forest Service, Supervisor's Office,
    Federal Building, Great Falls
Great Falls Tribune, Tribune Building, Great Falls
Pioneer Press, 8 East Main, Cut Bank
Independent Observer, 7 Third Avenue S.E., Conrad
Ray E. Bauer and Dr. Robert Casey, Big Springs Enterprises, 3841 Fourth
    Avenue South, Great Falls
William Big Springs, East Glacier
Shaw-Smith, Inc., Surveyors, 1108 South Main Street, Kalispell
Judith Graham, M.D., Cut Bank
Smith, Emmons and Baillie, Strain Building, Great Falls
Ecological Consulting Services, Inc., Airport Way Building, Helena

Gentlemen:

This final environmental impact statement for Glacier Acres Subdivision is submitted for your consideration pursuant to the Montana Environmental Policy Act.

If you have any questions or comments, please let us know.

Sincerely yours,

D. G. Willems

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

DGW:APK:sh
Enclosure
cc: Dan Vichorek

MONTANA STATE DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

May 20, 1974
E.S. 74/110

A Final Environmental Impact Statement
for
GLACIER ACRES,
a proposed subdivision in Glacier County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 5005; and the act to control water pollution, Section 69-4801 through 4827, the following final environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning the proposed Glacier Acres Subdivision located near East Glacier in Glacier County, Montana, for which a request has been received for subdivision plat approval.

Location

This project is located about two miles from East Glacier, Montana, along the Heart Butte Road, encompassing the North 1/2 Section 29, Township 31 North, Range 12 West, MPM.

A draft environmental impact statement was prepared and circulated for the proposed Glacier Acres Subdivision on April 5, 1974. Copies of this statement, along with a plat, topographic map, soil type overlay, vegetative type overlay and various exhibits are available for public inspection in the Helena office of the Water Quality Bureau.

Response to the draft environmental impact statement was received from the U. S. Department of Interior, National Park Service; the State of Montana, Department of Fish and Game; Judith Graham, M.D.,; the State of Montana, Environmental Quality Council; and Smith, Emmons and Baillie, attorneys at law.

The U. S. Department of Interior, National Park Service, indicated they had no comments to offer since the location of Glacier Acres is outside Glacier National Park. The State of Montana, Department of Fish and Game offered the following comments:

> *The proposed subdivision area contains habitat for several species of game and non-game animals and birds. Since the entire development is on the Blackfoot Indian Reservation, the Department has no control over management of the area. However, the impact on the various species would be small. There are no species of particular interest involved nor does the area contain anything of special or historical interest.*

The following comments were received from Judith Graham, M.D.:

> *I have recently become aware of the plan for Glacier Acres, a proposed subdivision near East Glacier. I am writing to voice a protest to this plan. In the first place, I understand that the acreage involved*

> *totals 323 acres which has been divided into 106 lots. It seems to me that this comes out to approximately 3.4 acres per lot, and it seems to me as I understand state law that no subdivision may be divided into parcels of under ten acres. Am I correct? It also seems to me, as a property owner in the East Glacier area for the last seven years, that the area is relatively dry and I frankly doubt that there is enough water available to accommodate that many dwellings in such a small area. The facilities currently available at East Glacier for solid waste disposal consist merely of a ravine for open dumping which is already an eyesore, and with 106 more dwellings this problem would be markedly increased, it should seem to me. I wonder about concentration of that number of pit privies and seepage pots in such a small area.*
>
> *I notice on page five of the Draft Environmental Impact Statement dated April 5, 1974, under section IV, it is stated: "There are no public objections to this proposal". To my knowledge, the general public has not been made aware of this proposed development. I think if the general public were aware of it, you would hear a great deal of public objection voiced.*

With respect to minimum size of lots in subdivisions, Section 4 of the Montana Administrative Code 16-2.14(10)-S14340, Approval of Water and Sewer Facilities in Subdivisions, states:

> *The minimum size of lots may be regulated by local planning boards or other officials subject to minimum requirements of the department as set forth below:*
>
> *That the size approved by the department shall be governed largely by the area necessary for the safe accommodation of individual water supply and sewage disposal systems. The lots must be sufficiently large as to provide the separation between the water supply and sewage disposal systems and to accommodate sewage disposal systems within the bounds of the property, allowing a reasonable distance to the property line. Sewage disposal systems must be kept a safe distance from the house and a proper distance from the property line (*and above the water table*). A sufficient and definite setback for dwellings shall be determined based on the design of sewage disposal systems.*
>
> *(a) When individual water supply and sewage systems are to be provided to serve the property, the minimum size will be determined by soil porosity and groundwater depth, the amount of water usage anticipated, and will be not less than one acre in usable area but may be more if so indicated by the data submitted. When either an individual water system or an individual sewage system is to be provided to serve the property and the other service is to be provided by a public water or sewer system, the lot size will be determined by the physical characteristics listed above and will be not less than 20,000 square feet of usable area but may be more if so indicated by applicable data and the rules pertaining thereto. Usable area of the lots which is suitable for construction purposes does not include land which lies within the 100-year flood plain, is under water at certain times of the year or has extensive rock outcroppings.*

In addition, Section (6)(d)(vii) states:

> *Subsurface disposal of sewage treatment effluents on hillsides with slopes greater than 15 percent may create problems. Persons considering development on steep hillsides shall provide additional subsurface information as to the depth to rock, dip of rock (both degree and direction), location of rock outcrops on the property and adjacent property and such other information as may be deemed necessary.*

Therefore, it appears that the lots in the subdivision meet minimum lot size requirements with the possible exception of Lots 3 and 4 of Block 2 and Lots 1 through 24 of Block 5, due to possible unsuitability for subsurface sewage disposal.

As noted in the draft environmental impact statement, a well was drilled in the vicinity of Lot 5, Block 4. Since issuance of the statement, a satisfactory test well has been drilled in the vicinity of Lot 15, Block 2. This is deemed as sufficient evidence that a water supply is physically possible to develop on this property except for Lots 1 through 24 of Block 5. This area has virtually nothing in common with the rest of the subdivision.

The solid waste facility at East Glacier, Montana, is nothing more than an open burning dump. However, it is the local facility and the county commissioners have given written permission for persons who reside in the proposed subdivision to use the facility.

Dr. Graham has noted that on page five of the draft environmental impact statement that this section, which was prepared by Ecological Consulting Service, Inc. states:

> *There are no public objections to this proposal.*

It should be noted that in the department's addendum to Ecological Consulting Service, Inc. environmental assessment, it states on page 24 that:

> *There have been objections to this project expressed by the Blackfeet Tribe.*

Much of the addendum was devoted to publicizing these objections.

The State of Montana, Environmental Quality Council submitted the following comments:

> *I have carefully reviewed your department's draft environmental impact statement for Glacier Acres, a proposed subdivision in Glacier County, Montana.*
>
> *Based on the unreconciled conflicts surrounding this development and the field report submitted by Mr. Aikin, this office strongly supports Mr. Keppner's decision that the subdivision plat not be approved as submitted.*
>
> *Should items a. through e. on page 26 and 27 be resolved, and should the Department of Health and Environmental Sciences decide at some*

> *future date to remove sanitary restrictions from all or part of the proposed subdivision, a final environmental impact statement would, in our judgement, be necessary.*
>
> *Thank you for your efforts toward compliance with the Montana Environmental Policy Act.*

In concurrence with the Environmental Quality Council's judgment, this final environmental impact statement is being prepared and circulated to the interested governmental agencies and public.

Smith, Emmons and Baillie submitted the following comments in response to the draft environmental impact statement:

> *This firm represents Dr. Robert Casey and Mr. Ray E. Bauer, the owners of the N 1/2 Section 29 T31 N. R/2W. We are in receipt of your draft of April 5, 1974. There are several responses we wish to make to some of the matters contained in the draft.*
>
> *Initially, we believe that since the position of the Blackfeet Tribe has been given publication in the draft to the various parties to whom your draft was mailed, our clients' position should receive the same mailing. We make this request because of the severe judgments made by Mr. Roy, the attorney for the Blackfeet Tribe, against Dr. Casey and Mr. Bauer, the owners of Glacier Acres.*
>
> *It appears that Mr. Roy's comments in your draft of April 5, 1974, may possibly lead your Department to conclude the subdivision plat as submitted should be denied. We respectfully submit our position to show the stance taken by the Blackfeet Tribe is factually and legally incorrect.*
>
> *Mr. Roy's comments are directed to zoning, access and water for Glacier Acres.*
>
> *Mr. William Big Spring, Sr., and his wife Kathleen are members of the Blackfeet Tribe. They owned the land sold to our clients for Glacier Acres. On July 9, 1973, the Blackfeet Tribal Council signed an Agreement with them allowing residential dwellings on the area now designated as Glacier Acres. The Agreement refers to a comprehensive zoning plan but specifically permits the use of this area for residential purposes. Mr. Roy read the Agreement and approved it. On July 10, 1973, the Tribal Council approved the Agreement. A copy of the Agreement and Council minutes are enclosed.*
>
> *On August 4, 1973, our clients signed an Agreement to purchase this land from Mr. Big Spring and his wife. Final payment was made August 13, 1973. This transaction naturally involved thousands of dollars.*
>
> *The Agreement specifically and intentionally provides the exemption from the zoning plan was authority for the Big Springs " . . . their heirs, administrators, executors or their assigns to use the following described lands forever for . . . residential purposes only."*

Our clients would not have purchased this property except for the provision allowing the exemption to run to the successors of the Big Springs. Mr. Roy, the attorney for the Council, was fully aware of this language and its import.

The BIA, by letter of August 5, 1973, stated the Council had authority to make this Agreement. A copy is enclosed.

It is a gross error for the Council to state our clients " . . . have completely circumvented and ignored . . . " the Council's zoning plan. The Council exempted this land from the plan and as such, there is no circumvention of the zoning plan.

Our clients, as the owners of Glacier Acres, have an absolute right to drill for and take water beneath the surface of Glacier Acres. No permit is required from the Council before this can be done. This is an absolute right of property ownership to use the area above and beneath one's property. Mr. Roy's reference to Winters v. U.S., 207 U.S. 564, as authority to deny the right to drill a well is in error. That case involved a diversion of the Milk River. The case cannot be extended to conclude a person cannot use water located beneath his own property. The wells and the general residential use will be protected to avoid any pollution of any water located in this area.

Mr. Big Spring owns land adjacent to Glacier Acres. Access will be provided by him for Glacier Acres. He has a substantial interest in seeing Glacier Acres develop. Glacier Acres does not require any permit from the Council for access. The main road from Glacier to Heart Butte runs through this property. This road has been publicly used for over sixty (60) years.

Subsequent to the purchase our clients surveyed the land, constructed roads and prepared a proposed plat. The Council was well aware of this work and knew it was being done by our clients. Mr. Roy, himself, was fully aware of this activity.

On March 18, 1974, Mr. Roy advised our clients they must comply, notifying them they must comply with the comprehensive zoning plan and that the plan excluded residential lots in this area. A copy is enclosed.

On the same date, March 18, 1974, the Council informed Mr. Big Spring he had obtained the July 9, 1974, Agreement by fraud. The Council unilaterally rescinded the Agreement of July 9, 1973. A copy of the letter is enclosed.

The monetary repercussions of the Council's unilateral action on our clients and Mr. Big Spring is obvious. Our clients have not and will not accept the Council's attempt to cancel the July 9, 1973, Agreement. Enclosed is our letter to the Council on these matters dated April 5, 1974. If we do not receive confirmation from the Council by April 17, 1974, stating they will abide by the Agreement of July 9, 1973, then we shall file suit to enforce the Agreement and our concomitant rights to water and access for Glacier Acres.

The actions of the Council and its efforts made to your Department appear to indicate the Council will attempt to use your Department to force our clients to abandon this property. We believe the proper forum for this dispute is in the courts.

With reference to the Addendum, we submit the following remarks. The references are to the paragraph numbers of the Addendum:

(1) A test well is being drilled in the vicinity of Lot 15 of Block 2 for a water source.

(2) Glacier Park Company will furnish by letter a statement of intent to furnish water. Individual owners will transport their own water.

SEWAGE AND TOPOGRAPHY: (B) Block 2, Lots 1 through 37: The drainfields will be fault-free. The septic tank permit system will be enforced making the lots useable.

(D) Block 1, Lots 1 through 18: A good road is already built into this area to permit utilization of the lots. On Lots 8 through 13, the county roads as they exist are satisfactory so that they do not have to be redesigned. We will obtain a statement from the County Commission that the roads as built are satisfactory and adequate.

(E) Our clients are agreeable to a restrictive covenant for the steep lots. Our clients do not agree that this block should be left undivided and submitted at a later date.

I(8). Drainage and Runoff - Streets and Roads: The roads do not have to be brought to county standard and since this is unnecessary no lots would have to be redesigned. (See (D), supra)

II. Existing Ecological Conditions: This information is being obtained on the water table.

IV. Public Objection To The Project. This refers to the Council's zoning plan and has been discussed above.

ENVIRONMENTAL ASSESSMENT

1.B. The method by which water will be transported will be by the individuals themselves and we assume this will be by tanks.

C. We are unsure of the effect of the comment that " . . . most of the slopes over 20 percent are generally steeper than 50 percent".

II.C. Our clients will abide by any regulations of the Board on Solid Waste Disposal.

ALTERNATIVES AVAILABLE TO THE DEPARTMENT: On page 27, the draft refers to a preliminary subdivision approval. The Glacier County Commissioners

> *granted preliminary approval on November 5, 1973. The issue of Council approval may be one to be resolved by the courts. If the Agreement of July 9, 1973, is upheld, Council approval is not necessary.*
>
> *Our clients are preparing groundwater studies on lots adjacent to the beaver ponds.*
>
> *The county has stated the roads affecting lots in Block 1 to not need to be brought to county standards.*
>
> *We request the subdivision be approved. The Council exempted the Glacier Acres land from the zoning plan. The Council cannot unilaterally rescind the July 9, 1973 Agreement. Before it can do this it must place our clients and Mr. Big Spring in the same position they were in before the July 9, 1973 date, and this means restitution and damages.*
>
> *We propose the Board approve the subdivision with the condition that if the courts determine the Council is correct in rescinding the July 9, 1973 Agreement, that the subdivision approval be revoked. Our clients are agreeable to placing any monies derived from the sale of Glacier Acres lots in trust until a court decision is rendered. In this manner, the Board has met its responsibilities and recognized the forum to test the validity of the zoning exemption, access and water rights is in the courts.*
>
> *We have not discussed every item in your draft. We have endeavored to present the Board with our clients' position on those matters which the Board appears to have placed greater emphasis. We will furnish any further comments on your draft that you may request.*

It is understandable how the owners of the proposed Glacier Acres Subdivision and their attorneys are disturbed by the allegation of the Blackfeet Tribe that the proposed development would be in violation of the Tribal zoning plan. However, this is a problem to be resolved between the developers and the Blackfeet Tribe. The Department of Health and Environmental Sciences has no jurisdiction in matters concerning zoning.

The owners of the proposed subdivision claim an absolute right to drill and take water beneath the surface of the proposed Glacier Acres. The Blackfeet Tribe contends that a subdivision applicant cannot, in light of legal precedent, establish any right to the use of any water within the external boundaries of the Blackfeet Reservation, except by privilege or permit granted by the Blackfeet Tribal Business Council. Thus, the Blackfeet Tribe has claimed the absolute right to control the use of all surface and ground water within the external boundaries of the Reservation.

Chapter No. 509 of the Montana Session Laws, 1973, House Bill No. 465, states in Section 3(3)(b), *adequate evidence that a water supply that is sufficient in terms of quality, quantity and dependability will be available to insure an adequate supply of water for the type of subdivision proposed.* The difference of opinion between the property owners and the Blackfeet Tribe casts serious doubt on the dependability of the water supply. This matter must be resolved before the department can take further action.

With reference to the response made on the addendum to the draft environmental impact statement, the department offers the following comments:

(1) A test well has been drilled in the vicinity of Lot 15 of Block 2 by Doug Mendenhall of Great Falls. The driller's log is reported as follows:

Top of Ground

From (feet)	To (feet)	
0	5	Top soil
5	18	Sand and Gravel
18	27	Soft Tan Clay
27	34	Blue and Green Shale
34	42	Sandstone
42	50	Gravel - Water
50	62	Bearing

The static water level was 18 feet with the pumping level at 35 feet. The well tested at 10 gallons per minute measured 30 minutes after pumping began. As stated earlier, this test well and the well drilled in the vicinity of Lot 5, Block 4, is sufficient evidence that a water supply is physically possible to develop on the property, except for Lots 1 through 24 of Block 5. This area has virtually nothing in common with the rest of the subdivision.

(2) The Glacier Park County has not furnished a letter of intent to furnish water for cisterns. No arrangements have been made to transport water.

Sewage and Topography:

(B) There is no septic tank permit system in Glacier County. The statement that drainfields will be fault-free would be difficult to defend.

(D) Following is a statement from the Glacier County Commissioners stating that roads are adequate:

To Whom It May Concern

Re: Glacier Acres - Road Matters

This is to certify that Glacier County, Montana, is not interested in the construction of any roads in Block 1 of Glacier Acres and has no requirements whatsoever for any roads serving Block 1 of Glacier Acres to be in compliance with County road standards. This matter was fully discussed with Mr. Ray Bauer by the Glacier County Commissioners previously.

Respectfully,

/s/ William S. McAlpine

William S. McAlpine, Chairman
Glacier County Commissioners

(E) At this time, the evidence indicates Lots 1 through 24 of Block 5 are unsuitable for subsurface sewage disposal. A field investigation may reveal some suitable sites on these lots.

I(8) This was covered in D above.

II. Water table information on the lots near the beaver ponds is being gathered but has not been submitted to date.

Environmental Assessment

1B. If a future resident should desire to use a cistern instead of drilling a well, evidence that a means of transporting water must be submitted before the department can issue a certificate that this is an approved water system.

C. This statement refers to Lots 1 through 24 of Block 5 where most slopes were reported in excess of 20 percent when in fact they are generally in excess of 50 percent.

11C. Unfortunately, the only solid waste disposal facility is the previously discussed "dump" at East Glacier.

Alternatives Available to this Department

1. Approve the subdivision plat as submitted. Due to present circumstances, the exercise of this alternative at this time is precluded by the following:

    a. This proposed development is within the exterior boundaries of the Blackfeet Reservation. It appears that ownership and control of all surface and ground waters within the exterior boundaries of the Blackfeet Reservation are invested to the Blackfeet Tribe. This raises serious doubt as to the availability and dependability of a water supply to the proposed development.

    b. The local planning and zoning authority (the Blackfeet Tribal Business Council) is in opposition to the proposed project and does not deem it prudent to grant a preliminary subdivision approval. Until this position is altered in favor of those with a vested economic interest in the proposed development, the Department of Health and Environmental Sciences deems it prudent to defer further action. Additional expenditure of public resources in the area of subdivision review would be futile at this time.

    c. Lots 1 through 26, Block 5, appear to be unacceptable with respect to sewage disposal.

    d. The results of groundwater studies on the lots adjacent to the beaver ponds must be submitted and evaluated before approval of the lots in question can be considered.

    e. It should be ascertained whether roads affecting lots in Block 1 need to be brought to county standards and consequently necessitate the redesign of Lots 8 through 13.

2. Refuse to approve the subdivision plat as submitted. Due to circumstances enumerated in number 1 above, consideration should be given to this alternative.

3. Grant subdivision plat approval on portions of the property that can meet department requirements with respect to water supply, sewage disposal, solid waste disposal and water quality. Until questions of zoning and water rights with the Blackfeet Tribe are resolved, the department cannot consider implementation of this alternative.

This statement was prepared by Alfred P. Keppner, B.S.F., M.S., Soils Scientist.

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Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

ENVIRONMENTAL SCIENCES DIVISION
Board of Health Building
(406) 449-3946

A. C. Knight, M.D.
Director

AUG 9 1977

July 29, 1977

Honorable Thomas Judge, Governor, State of Montana, Helena, MT, 59601
Honorable Ted Schwinden, Lieutenant Governor, State of Montana, Helena, MT, 59601
Montana State Library, Helena, MT, 59601
Environmental Quality Council, Helena, MT, 59601
Department of Community Affairs, Helena, MT, 59601
Department of Fish and Game, Helena, MT, 59601
Department of Highways, Helena, MT, 59601
Department of Natural Resources and Conservation, Helena, MT, 59601
Montana Bureau of Mines and Geology, c/o Montana Tech, W. Park St., Butte, MT, 59701
Fire Marshall Bureau, Department of Justice, Helena, MT, 59601
Fish & Wildlife Service, Attn: Larry Peterson, Box 567, Kalispell, MT, 59901
Fish & Wildlife Service, 711 Central Avenue, Billings, MT, 59102
Glacier National Park, West Glacier, MT, 59936
Environmental Protection Agency, William Geise, 8W-EE, 1860 Lincoln Street, Denver, CO, 80295
Soil Conservation Service, Attn: Wendel Martinell, 517 E. Main, Cut Bank, MT, 59427
Bureau of Indian Affairs, Attn: Area Director, 316 N. 26th St., Billings, MT, 59101
Bureau of Indian Affairs, Attn: Myron Saltmarsh, 316 N. 26th St., Billings, MT, 59101
Office of Interstate Landsales Registration, Attn: Carlton Goodwin, Title Bldg., Room 324, 909 17th St., Denver, CO, 80202
Glacier County Commission, Glacier County Courthouse, Cut Bank, MT, 59427
Glacier County Attorney, Glacier County Courthouse, Cut Bank, MT, 59427
Glacier County Sanitarian, Courthouse, Shelby, MT, 59474
Glacier County Sheriff, Glacier County Courthouse, Cut Bank, MT, 59427
Glacier County Library, 21 1st Avenue SE, Cut Bank, MT, 59427
Glacier County Library, Browning Branch, Box 550, Browning, MT, 59417
Blackfeet Tribal Business Council, Browning, MT, 59417
Blackfeet Planning Staff, Browning, MT, 59417
Blackfeet Tribal Attorney, Attn: Phil Roy, Browning, MT, 59417
Blackfeet Tribal Dept. of Law and Order, Browning, MT, 59417
Western Travel & REcreation, Inc., 3819 Stephens, Missoula, MT, 59801
Milton Datsopoulos, 3819 Stephens, Missoula, MT, 59801
Dean Marquardt, 1031 South Main, Kalispell, MT, 59901
Center for Public Interest, Box 931, Bozeman, MT, 59715
Ducks Unlimited, Attn: Patrick McDonough, Box 327, Billings, MT, 59101
Environmental Information Center, Box 12, Helena, MT, 59601
Friends of the Earth, Attn: Ed Dobson, Box 882, Billings, MT, 59103
Montana Wilderness Association, Attn: Thomas E. Horobik, 4000 4th Avenue N, Great Falls, MT, 59401
Northern Rockies Action Group, 9 Placer, Helena, MT, 59601
Sierra Club, Attn: Joe Angell, General Delivery, Helena, MT, 59601
Student Environmental Research Center, Venture Center, University of Montana, Missoula, MT, 59801
Trout Unlimited, Attn: Jim Handley, Box 140, Manhattan, MT, 59741
Wilderness Society, Attn: Phil Tawney, Box 12, Helena, MT, 59601
Montana Realtors Association, 2021 11th Avenue, Helena, MT, 59601

Jeanne Whiteing, Native American Rights Fund, 1506 Broadway, Boulder, CO, 80302
Resources Education Foundation, Inc., Box 1148, Helena, MT, 59601
Neil Nermyr, Manager, Glacier Electric Coop, Inc., Cut Bank, MT, 59427
Continental Telephone Company of the West, 300 McLeod, Big Timber, MT, 59011
Jim Goetz, 15 S. Tracy Avenue, Bozeman, MT, 59715
Floyd Lutz, County Assessor's Office, Glacier County Courthouse, Cut Bank, MT, 59427
Rodney Brod, Department of Sociology, University of Montana, Missoula, MT, 59801
Dee Taylor, Department of Anthropology, University of Montana, Missoula, MT, 59801
Vernon Ausen, Coordinator, Property Acquisition, Physical Planning, University of
    Minnesota, 348 Elliott Hall, Minneapolis, MN, 55455
G. M. Begg, 220 Woodland Avenue, Kalispell, MT, 59901
Grover Austad, 801 7th Avenue N., Great Falls, MT, 59401
Norman Anderson, 1408 8th Avenue S., Great Falls, MT, 59401
A. G. Anderson, 94 Lower Valley Rd., Kalispell, MT, 59901
Harvey Thronson, Babb, MT, 59411
Perry Stenson, 521 W. Colorado, Kalispell, MT, 59901
Sen. Harold Nelson, 704 3rd Street SE., Cut Bank, MT, 59427
Rep. George Johnston, 504 3rd Street SE., Cut Bank, MT, 59427
Rep. Leo Kennerly, Jr., Box 523, Browning, MT, 59417
John Bartlett, 2214 Winne, Helena, MT, 59601
Rita Sheehy, 1041 Poly Drive, Billings, MT, 59102
Dr. John Newman, Box 3493, Butte, MT, 59701
Dr. John McGregor, Room 31, Great Falls National Bank Building, Great Falls, MT, 59401
Leonard Eckel, 1727 11th Avenue, Helena, MT, 59601
William Spoja, Jr., Box 882, Lewistown, MT, 59457
Charles Shields, 1755 W. Central Avenue, Missoula, MT, 59801
Glacier Reporter, Browning, MT, 59417
Cut Bank Pioneer Press, 8 E. Main, Cut Bank, MT, 59427
Western Breeze, 32 S. Central Avenue, Cut Bank, MT, 59427
Daily Inter Lake, Box 8, Kalispell, MT, 59901
Tribune Capitol Bureau, 515 N. Sanders, Helena, MT, 59601
Lee State Bureau, Box 557, Helena, MT, 59601
Associated Press, 317 Allen, Helena, MT, 59601
United Press International, 2021 11th Avenue, Helena, MT, 59601

Reviewer:

The enclosed final environmental impact statement (EIS) has been prepared for the proposed Golden Glacier Parklands subdivision in Glacier County. This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days after the date of this publication. If no communication occurs during the time period it will be assumed the person or agency does not have any comments. An extension of time, not to exceed 15 days, may be requested. All comments should be sent to the Subdivision Bureau, Environmental Sciences Division, Helena, MT, 59601.

Sincerely yours,

Edward W. Casne, Chief
Subdivision Bureau

EWC:TME:dmg

ENVIRONMENTAL IMPACT STATEMENT

GOLDEN GLACIER PARKLANDS

WESTERN TRAVEL & RECREATION, INC.

DUCK LAKE

GLACIER COUNTY, MONTANA

July 1977

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Appendix A

MONTANA DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

FINAL ENVIRONMENTAL IMPACT STATEMENT

Golden Glacier Parklands
A Proposed Subdivision
Glacier County

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b)(3), the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001; and the act to control water pollution, Section 69-4801, the following final environmental impact statement (EIS) was prepared by the Montana Department of Health and Environmental Sciences (DHES), Environmental Sciences Division, concerning the request for administrative approval of GOLDEN GLACIER PARKLANDS, a proposed subdivision near Babb, Montana.

DESCRIPTION

Western Travel & Recreation, Inc., a Missoula development corporation, proposed to subdivide three parcels of previously undeveloped shoreline on Duck Lake, four miles east of Babb (in portions of Sections 15, 16, 17, 18, 19, 20, 21 & 22, T36N, R13W - see attached map #1). Although the land is privately owned, it is within the borders of the Blackfeet Indian Reservation.

The corporation plans to subdivide 140 acres of its 2,080 acres into 63 lots (see attached map #2), ranging from 1.1 to 3 acres in size and totaling 89.55 acres (1,315 acres are in the Duck Lake Basin, the remaining 765 acres are outside the basin). The development is divided into three separate parcels: 19 lots are in the western parcel, 15 in the northern parcel and 29 in the southeastern parcel. The corporation also plans to set aside 50.80 acres for parks.

SUMMARY OF MAJOR CONCLUSIONS

The Golden Glacier Parklands draft EIS (reference draft EIS) concluded the DHES had three alternative actions:

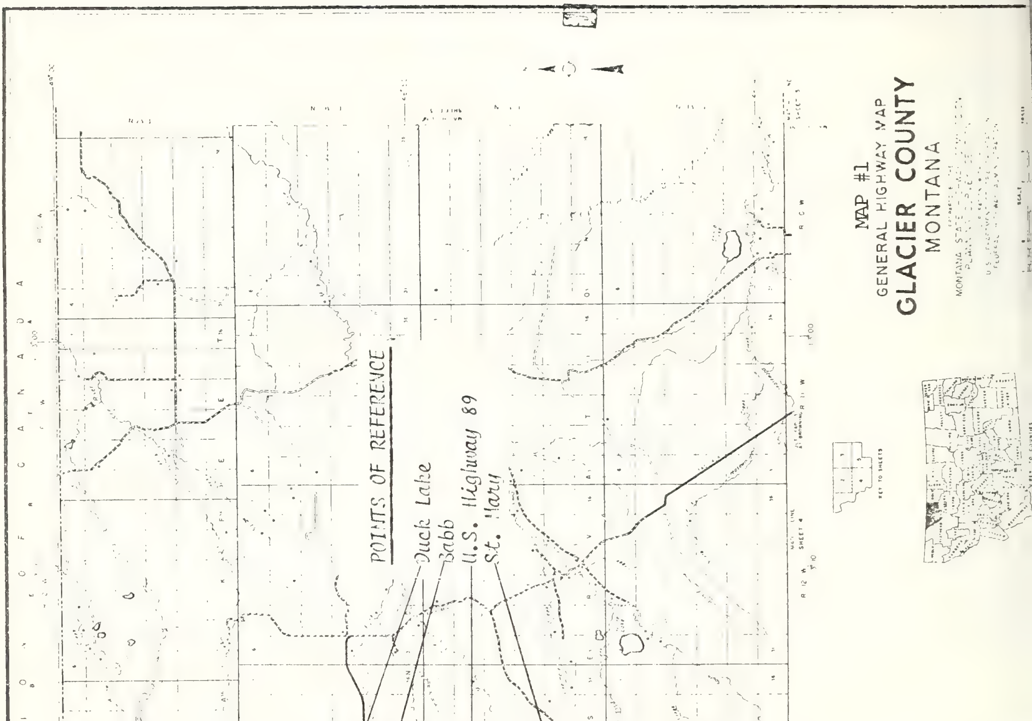
1. Disapprove the subdivision, which would mean the physical and human environments would remain as they are now, with future recreational growth centered around the Blackfeet Tribe's existing campground.

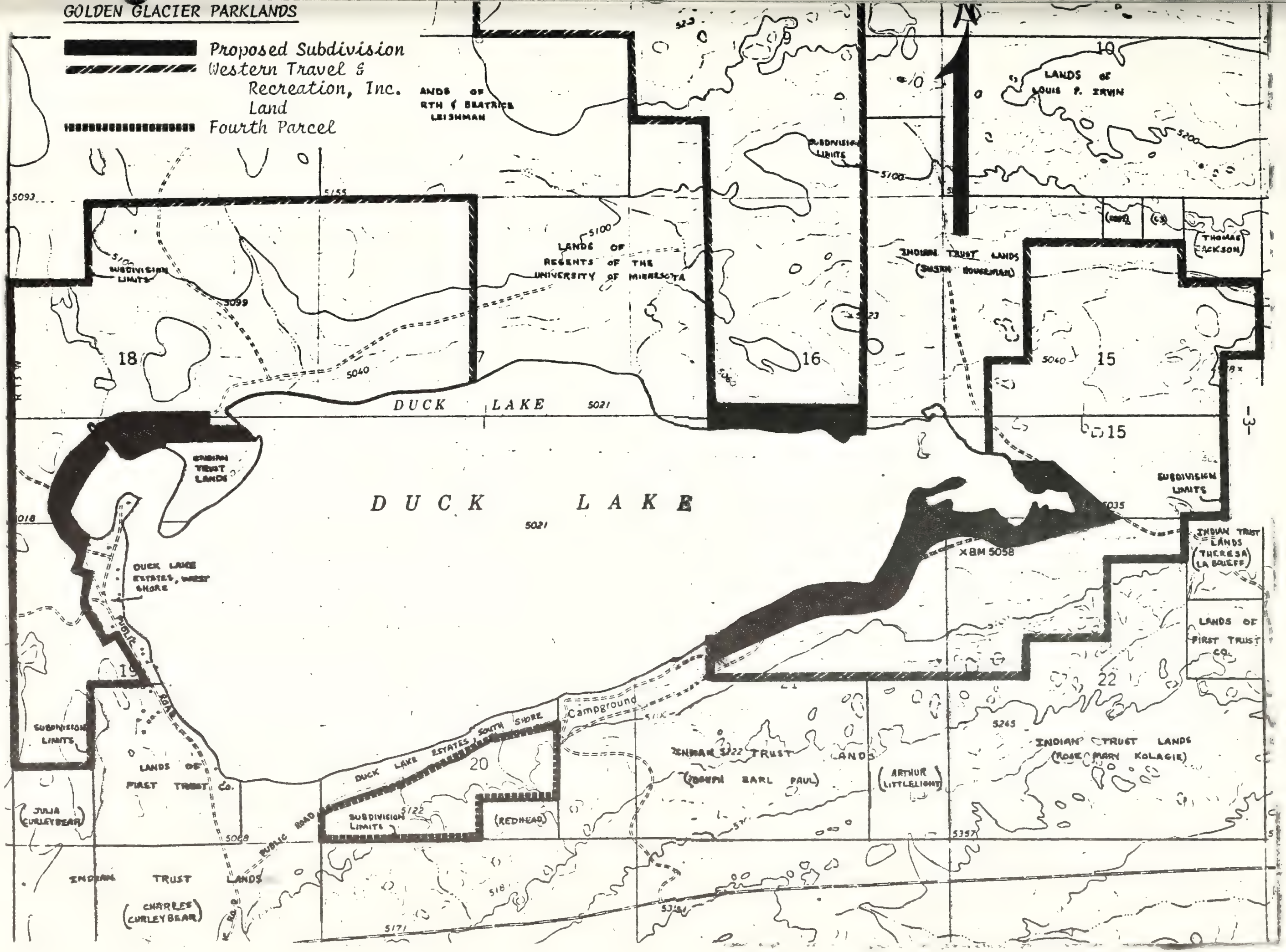
2. Unconditionally approve the development, which, without specific considerations for the delicate nature of the lake and shoreline, could lead to a serious decline in water quality.

3. Conditionally approve the development in order to protect the lake, shoreline and health of future homeowners. The conditions included:

A. The development corporation must retain a professional engineer (P.E.) to insure plans for sewage disposal and water supply systems meet state standards and the systems are properly installed.

B. The DHES must receive a copy of a plat suitable for filing, with the elimination of Lots 11, 20, 58, 59, 60, 61, 62 and 63 from the final plat.


DOMINION OF CANADA
POINTS OF REFERENCE
Duck Lake
Babb
U.S. Highway 89
St. Mary
GLACIER NATIONAL PARK
MAP #1
GENERAL HIGHWAY MAP
GLACIER COUNTY
MONTANA


GOLDEN GLACIER PARKLANDS
Proposed Subdivision
Western Travel & Recreation, Inc. Land
Fourth Parcel
LANDS OF LOUIS P. IRVIN
ANDS OF RTH & BEATRICE LEISHMAN
LANDS OF REGENTS OF THE UNIVERSITY OF MINNESOTA
INDIAN TRUST LANDS (SUSAN HOUSEMAN)
THOMAS JACKSON
SUBDIVISION LIMITS
DUCK LAKE
5021
INDIAN TRUST LANDS
DUCK LAKE ESTATES, WEST SHORE
PUBLIC ROAD
LANDS OF FIRST TRUST Co.
JULIA CURLEYBEAR
INDIAN TRUST LANDS
CHARLES CURLEYBEAR
DUCK LAKE ESTATES SOUTH SHORE
Campground
(REDHEAD)
INDIAN TRUST LANDS (JOSEPH EARL PAUL)
ARTHUR LITTLELIGHT
INDIAN TRUST LANDS (ROSE MARY KOLAGIE)
INDIAN TRUST LANDS (THERESA LA BOUEFF)
LANDS OF FIRST TRUST CO.
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C. Every effort must be made to keep sediment from reaching the lake. A detailed storm drainage plan and related design for the control and treatment of runoff water must be submitted to DHES for approval.

D. Road bridge details or road relocation plans must be submitted to DHES and approved.

E. If recreational vehicles are to be allowed, the developer must submit design plans for a sanitary dumping station and a drinking water system to DHES in order to facilitate that type of recreational use.

After considering the information in the draft EIS and the three alternative actions, the DHES recommended alternative three, conditional approval of Golden Glacier Parklands subdivision.

PUBLIC HEARING

A public hearing was held in St. Mary, MT, May 17, 1977, to enable interested groups or persons to express their views of the draft EIS and present new information. Appendix A is a transcript of the hearing.

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
BILLINGS AREA OFFICE
316 North 26th St
BILLINGS MONTANA 59101

IN REPLY REFER TO:
Environmental Quality

JUN 16 1977

Mr. Edward W. Casne
Chief, Subdivision Bureau
Department of Health & Environmental Sciences
Board of Health Building
Helena, Montana 59601

Dear Mr. Casne:

In correspondence to your office dated May 17, this Bureau requested an extension of time in which to submit comments on the Golden Glacier Parklands environmental impact statement. We have now completed our review of the statement and wish to offer the following comments:

1. The statement notes the unique and fragile resources of Duck Lake, but fails to adequately present the potential impacts that may occur. Particularly, there is a lack of information to adequately assess the present nutrient status of the lake; and consequently, the possible effects of the proposal on nutrient enrichment. The statement verifies the existence of pollution from sewage systems in 1974 tests. It is possible that additional sewage systems along with sediments from road building, landscaping, construction, etc., may cause an eutrophic condition. This eutrophic condition is more likely to occur if mitigating measures are left to the lot owners and not the developing corporation (page 40). It would appear that changing the lake from a mesotrophic condition to an eutrophic condition will destroy the very atmosphere that served to attract the developers.

2. The statement recognizes the lack of community support for the proposal, but fails to present the potential social impacts to the Blackfeet Reservation or to give consideration to the impacts on the state or national level. In addition, there is no mention of coordination in this effort with the Blackfeet Tribe. The Tribe's intention to file suit in order to stop the development only suggests the possible impacts.

3. The conditional approval recommended by the DHES does not provide any assurance that mitigating measures will or can be accomplished. The DES states (page 40) that..."the fact remains that most of the responsibility for insuring the mitigating measures are implemented will not be the corporation's, rather it will be future, unknown, lot owners." It can be foreseen that without enforceable control measures eutrophication of the lake may occur. Also, without garbage service and a pack-in

DHES RESPONSE

1. The discussions of possible impacts on water quality were based on information from the U.S. Fish & Wildlife Service (USFWS) and the state Water Quality Bureau (WQB). The information was current and, to our knowledge, the only scientific data available which discussed water quality in Duck Lake.

The tests for coliform bacteria in 1974 revealed that five locations along the lake shore displayed bacterial counts exceeding U.S. Public Health Standards. Persons with residences on the lake were advised of the situation by government and tribal authorities. According to a U.S. Public Health Service representative, no further testing has been done.

The proposed conditions of the permit (Conditional Approval, Alternative Actions, pp. 41-42 of the draft EIS) is designed to make the development corporation responsible for insuring that water quality is protected.

2. A number of Blackfeet tribal members were consulted during the research and writing of the EIS (Refer to References, draft EIS).

In terms of the law suit, the Blackfeet Tribe publicly stated, before the draft EIS was written, that disagreements concerning the proposed development might lead to court action.

3. The conditional approval recommended by the DHES does provide assurance that the development corporation will accomplish mitigating measures. The reference cited on page 40 deals with restrictive covenants, which do not provide any legal guarantees that they will be followed after sanitary restrictions are removed by DHES.

Plans for the disposal of solid waste were reviewed and approved by the Solid Waste Management Bureau.

pack-out policy, refuse will likely be discarded in a nearby coulee. In addition, it appears doubtful that a homeowners association can adequately enforce any of the provisions of the restrictive covenants.

4. The developer's restrictive covenants provide for the creation of a homeowner's association which will be responsible for a number of things concerned with the landscape and its alterations. However, nothing was said in regard to construction of docks or wharfs. To avoid the construction of unsightly breakwaters, wharfs, docks, etc., there should be restrictions or standards established for these types of construction which the owners should be required to adhere to.

5. Appendix C of the DES states that a riparian owner is by Federal law granted access to the lake (Namen case, 390 F. Supp. 452.457 (1974), and therefore can construct a dock or wharf, and trench as he pleases below the high water line in order to obtain water. We do not propose or attempt to counter this discussion, however, we do feel that United States vs. McIntire, 101 F 24 650, should be recognized in any situation where non-Indians are comtemplating filing for waters on an Indian Reservation. It was held in this case that any water rights of a non-Indian purchaser of a former Indian trust allotment derives his right from Federal and not State law. Consequently, at the present time, any non-Indian use of water on an Indian Reservation is subject to the paramount right to the waters use by the Indians. Under the circumstances, this should be made very plain for any purchase of lands within the proposed development.

Sincerely yours,

Area Director

DHES RESPONSE

4. Since docks would extend into the lake, it seems the Blackfeet Tribe would be the approving or disapproving authority.

5. Appendix C is a discussion by the development corporation's attorney. It's assumed that conflicting legal opinions will be either settled by the appropriate attorneys or resolved in court.

cc: Wake
Casne

United States Department of the Interior
NATIONAL PARK SERVICE
GLACIER NATIONAL PARK
WEST GLACIER, MONTANA 59936

DHES RESPONSE

IN REPLY REFER TO:
L7617

May 23, 1977

RECEIVED
MAY 25 1977
MDHES
DIRECTOR'S OFFICE

Dr. A. C. Knight,
Director
Department of Health and Environmental Sciences
State of Montana, Board of Health Building
Helena, Montana 59601

Dear Dr. Knight:

Thank you for the opportunity to review your agency's environmental impact statement on the Golden Glacier Parklands at Duck Lake in Glacier County, your reference 8W-EE. National Park Service comments are as follows:

1. Under Human Health

The National Park Service can in no way provide emergency ambulance service at Duck Lake outside of Glacier National Park, as it has in past years on a "good samaritan" basis. The park would have to neglect its duty to emergency calls within the park.

2. Under Demands for Government Service

The park does have a cooperative agreement with the Bureau of Indian Affairs to respond to wildland fires outside of the park boundary, but there are no building fire agreements. The run with equipment would be from 12 to 16 miles. Many times in winter it would be impossible to reach buildings at Duck Lake. Firemen manpower in the off season would be nil. Glacier National Park would not agree to provide structural fire protection for Duck Lake.

Again, thanks for the opportunity to review the assessment.

Sincerely yours,

Phillip R. Iversen

Phillip R. Iversen
Superintendent

Both comments were discussed in the draft EIS.

MONTANA ENVIRONMENTAL QUALITY COUNCIL
CAPITOL STATION
HELENA, MONTANA 59601
JOHN W REUSS EXECUTIVE DIRECTOR

GOV. THOMAS L. JUDGE
FOR DESIGNATED REPRESENTATIVE
G. STEVEN BROWN

HOUSE MEMBERS
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ED B. SMITH
MARGARET S. WARDEN

APPOINTED MEMBERS
G. W. DESCHAMPS
CHARLES DOHENY
HARRIET MARBLE
JACK D. REHBERG

June 13, 1977

RECEIVED
JUN 13 1977
MONTANA DEPT. OF HEALTH
& ENV. SCIENCES
SUBDIVISION BUREAU

To: Ed Casne, Chief
Subdivision Bureau

8

From: Steve Perlmutter, Staff Attorney

Subject: GOLDEN GLACIERS PARK SUBDIVISION EIS

I would like to begin by commending the writers of this impact statement for the general quality of its contents. We do have some reservations, expressed below, but the EIS accomplishes its task of alerting the reader to most of the dangers associated with the proposed development. We also welcome the Health Department's recognition that the Beaver Creek decision did not relieve the department of the responsibility to prepare thorough and comprehensive impact statements on subdivisions.

Our concern with the proposed subdivision centers on three factors: (1) availability of an adequate water supply; (2) conflict with tribal land use plans for the area; (3) cumulative and long-term impacts on water quality in a closed drainage.

1. Availability of water supply. The Sanitation in Subdivisions Act requires the Department of Health to make a finding that an adequate water supply, in terms of quality, quantity, and dependability, will be available to the subdivision. (69-5005(3)(b), R.C.M. 1947) The EIS at pages eight and nine indicates that (1) there is insufficient evidence to assure an adequate supply from drilled wells, and (2) there are unresolved legal problems involved in the use of infiltration galleries from the lake. The question of Indian water rights, and the extent to which such rights may preclude the use of ground and surface water in the Duck Lake drainage without tribal approval, may be the source of lengthy litigation, the outcome of which is presently uncertain. Because Department of Health approval of a subdivision must be based on a finding of adequate water supply, it seems premature to recommend such approval before these legal obstacles are dealt with.

2. Tribal land use plans. The discussion starting at page thirty-six of the EIS indicates the opposition of the Blackfeet Tribe to the proposed development. The subdivision would be inconsistent with tribal land use and recreational development plans. The Montana Environmental Policy Act stresses the importance of the social impacts of a proposed action. While the Sanitation in Subdivisions Act does not explicitly concern itself with local land use plans,

DHES RESPONSE

1. After reviewing the information submitted by the development corporation and its attorneys, the DHES decided that infiltration galleries will technically provide an adequate supply of potable water in terms of quality, quantity and dependability.

As was stated in the draft EIS, the question of water rights will depend on formal adjusication of the issue under applicable water rights law.

2. The Montana Environmental Policy Act (MEPA) analysis contained in the EIS attempts to analyze the three statutory criteria upon which the department will make a final decision--water supply, sewage and solid waste disposal--while still addressing the basic land use and environmental impacts that the Montana Supreme Court has indicated are part of local government's substantive decision-making authority.

the opposition of the Tribe to this project does indicate that the legal obstacles mentioned above with respect to water rights will not easily be overcome. Again, it seems prudent to withhold approval until these conflicts are resolved.

3. Threats to a fragile ecosystem. Our most pressing concerns are with the manner in which serious threats to a fragile ecosystem are being dealt with. The EIS has made the case that the future water quality of Duck Lake is precariously balanced:

-Duck Lake is a high quality fishery which will be endangered by development. (p. 7, 27)

-Duck Lake is in the upper limits of the mesotrophic state; it is very sensitive to nutrient impacts. (p. 11)

-Proposed plans for sewage disposal meet state standards, but "the location of sewage systems in this closed drainage will eventually contribute to the nitrogen enrichment of Duck Lake." (p. 18)

-Duck Lake is a unique and fragile ecosystem which is subject to the risks of eutrophication. (p. 21)

-With respect to road drainage, "a little lack of maintenance could negate all the plans to prevent siltation." (p. 30)

-It is impossible to assure that all covenants and protective measures will be adequately enforced in the future, and it is hard to say who will bear the responsibility for correcting problems which may arise. (p. 40)

The issue here is whether the Department of Health has developed adequate procedures for assessing the long-range cumulative impacts of subdivision developments, or adequate policies for considering such cumulative impacts in decision-making. The EIS asserts that this subdivision, if properly developed and maintained, will not cause the lake to become eutrophic (p. 12). Yet the implication is clear that future development will increase the risk, and that there is no guarantee that even this subdivision will be adequately maintained. Furthermore, because this is a closed drainage environment, even "properly planned" developments will eventually contribute to the eutrophication of the lake. (p. 18)

Consequently, it would be appropriate to devote more time and effort to analysis of the cumulative, long-range impacts of development in fragile ecosystems such as this one. The Department of Health should begin to consider the formulation of guidelines for subdivision development in regions where clean water is a limited and endangered resource. Developers would, we think, welcome such guidelines as an aid to them in planning their developments.

Finally, it seems inappropriate for the Department to recommend the approval of the subdivision (p. 42) before the draft EIS is even circulated for review. Impact statements are meant to aid the decision-maker in making his decisions, not to justify decisions already made. In light of the dangers which are described in the EIS, it would be advisable to delay a final decision pending further analysis of some of the issues mentioned above.

Thank you for this opportunity to comment.

DHES RESPONSE

3. A major aim of the MEPA process is to define, using the most accurate information available, the status of the existing environment. The DHES feels it is complying with the spirit of MEPA in the Golden Glacier Parklands draft EIS.

Included in the anlaysis was an attempt to determine the present state of water quality in Duck Lake and its basin and predict what impacts such a development could have on water quality.

Decisions concerning water, sewage and solid waste are being made on the basis of the best technical and scientific information available. In terms of guaranteeing the subdivision will be properly maintained, the DHES can provide no legal guarantees beyond its sphere of legal jurisdiction. The conditions of the proposed Conditional Approval, Alternative Actions, pp. 41-42 of the draft EIS, describes definite actions the development corporation would have to take to guarantee the protection of environmental quality before the department would approve such a proposal.

Next to last paragraph: The department feels the public has the right to know what it intends to recommend. Normally the bulk of the technical scientific information is presented in the draft EIS. By making a recommendation, the reader knows that the decision-maker has read the document, considered a number of alternatives and tentatively, favors a proposed course of action. Since it is the draft EIS, the decision can be altered if new information is discovered during the period of public review, prior to the final EIS.

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

Helena, Montana 59601

June 13, 1977

Mr. Ed Casne, Chief
Subdivision Bureau
Department of Health and Environmental Sciences
Helena, Montana 59601

Dear Ed:

The Montana Department of Fish and Game has reviewed the environmental impact statement for the Golden Glacier Parklands development. We have the following comments:

As pointed out in the impact statement, Duck Lake is unquestionably a unique and fragile resource. Very few large pothole lakes in glaciated regions are as relatively unaltered by humans as is Duck Lake. Waterfowl utilize the undeveloped portions of shoreline for cover, nesting and feeding. The rate of rainbow trout production is as high as anywhere in Montana. This trout production rate is a reflection of the current trophic status of the lake. The existing nutrient levels are high enough to maintain an acceptable rate of primary (aquatic plant) production, yet not excessive enough to cause algal "blooms." Primary production is the keystone of the total harvestable yield in most lakes, since it regulates the total, potential biomass of organisms at higher levels in the food chain. It is our opinion that even slight increases in nutrient levels, particularly phosphorus, would elevate Duck Lake to an overly enriched or eutrophic condition. One needs only to look at Lake Mary Ronan for an example of the resulting loss in salmonid fish production when overenrichment of a lake occurs.

The Montana Department of Fish and Game feels that increased nutrient additions, inherent in any further development of Duck Lake, is a risk too great to allow us to give our concurrence for this development. It seems inconsistent for people to develop an area surrounding a fragile fish and wildlife resource, since by so doing they threaten the very resource they plan to enjoy.

However, if it is the majority opinion of all concerned to grant conditional approval of the subdivision, we would strongly suggest that the following conditions be stipulated by the Department of Health and Environmental Sciences:

A rural sewage improvement district (RSID) be required. This district should provide both potable water and sewage collection and disposal for all homesites within the subdivision. Water should be supplied by a high-yield, deep well that would subsequently not have a direct impact upon the shallow aquifers that maintain the water level of Duck Lake. Such a well would thus eliminate the potential impacts resulting from the dewatering of shallow shoreline areas by individual infiltration galleries.

DHES RESPONSE

In the course of discussions with representatives of the development corporation, department personnel recommended alternatives to the proposed water and sewer systems. Among the recommendations were suggestions to install central sewer and water systems. However, the corporation decided against such suggestions.

The DHES cannot demand that specific sewer and water designs be used if other designs prove feasible and meet the requirements of the Subdivision and Sanitation Act.

In terms of landfills, it seems the Blackfeet Tribe would be the agency responsible for wharfage. Additionally, the corporation did propose to create a fill roadway across an inlet in the western block of lots, but the DHES will require a bridge or an alternate route around the inlet.

DHES REPONSE

All homes should similarly connect to a central sewage collection system. All wastewater should be transported to a lagoon located on a portion of the approximately 700 acres owned by Western Travel and Recreation outside of the Duck Lake basin. The lagoon would be used for storage during the nongrowing season. During summer, a sprinkler system should be used to irrigate land outside of the Duck Lake drainage area.

Such a central sewage system would eliminate any possibility of nutrient enrichment of Duck Lake. Other existing homesites in the basin should also be encouraged, or if possible required, to join the RSID facilities. The cost of the central well, water lines, sewage mains, lift stations, and sprinkler system should be incurred by Western Travel and Recreation for all lots within Golden Glacier Parklands.

Land-fill type wharfage should not be allowed. Portable, floating piers that can be removed during winter would be more than adequate for boat protection and for receiving and discharging of passengers.

No culverts or bridges should be constructed or placed over any portion of Duck Lake. Roads should be built around any shoreline coves or marshes.

For the benefit of the fish and wildlife resource, we would recommend denial of Golden Glacier Parklands subdivision to ensure the long-term productivity of Duck Lake. If the Department of Health and Environmental Sciences grants conditional approval, we would request that our above comments be incorporated as required stipulations.

We appreciate the opportunity to comment on this matter.

Sincerely,

James A. Posewitz, Administrator
Environment & Information Division

JAP/KK/sd

cc: Environmental Quality Council
Ken Knudson

DHES RESPONSE

DCA MONTANA DEPARTMENT OF COMMUNITY AFFAIRS
Capitol Station Helena, Montana 59601
Thomas L. Judge
Governor

May 24, 1977

Mr. Edward W. Casne, Chief
Subdivision Bureau
Department of Health and
  Environmental Sciences
Capitol Station
Helena, Montana 59601

Dear Ed:

I have reviewed the draft environmental impact statement for the proposed Golden Glacier Parklands Subdivision in Glacier County. I am familiar with the proposed development because I attended the public hearing on the subdivision on May 5, 1975. I also prepared our agency's advisory comments on the subdivision according to the review procedures established by the Subdivision and Platting Act. Our major concern at that time was, and still is, the potential effect of individual septic systems on the water quality of Duck Lake. According to the E.I.S. (page 18), biological contamination of Duck Lake water will not occur if the individual sewage systems are properly designed, installed and operated. I am skeptical that the developer's alternative to county or tribal review will be adequate to insure all of these conditions.

According to the E.I.S., "in lieu of county or tribal review, the developer has agreed that a statement will be placed in both the covenants and the certificate of plat approval that guarantees the plans and specifications for each individual system will be drawn up by a licensed P.E.' This alternative to public review seems entirely reasonable.

The E.I.S. goes on to state that "to insure the plans for each sewage disposal system meet state standards and the system is properly installed, the DHES will require the developer to retain a P.E. to notify the department, in writing, that the plans meet state standards and the system has been properly installed."

The requirement that the plans meet state standards is easy enough to comply with. However, on what basis will the P.E. attest that the system has been properly installed? Will the P.E. be supervising the installation of each disposal system as would be the

Harold A. Fryslie Director 406/449-3494

Mr. Edward W. Casne
May 24, 1977
Page 2

case with review by a public official or will he just be relying on the word of a contractor that the system was installed properly? Because proper installation is critical anything less than direct supervision of the installation of each system cannot be considered an acceptable alternative to public review.

According to the E.I.S., the third condition required to prevent contamination of Duck Lake is if the individual sewage disposal is "properly operated." Under the developer's alternative to public review what provision will be made to correct improper operation of a sewage system? Will anyone have the authority to require remedial action?

Because proper design, installation, and operation of the sewage systems is crucial I believe that the above questions must be satisfactorily answered by the E.I.S.

The E.I.S. is otherwise thorough and very well done. Thank you for the opportunity to comment.

Sincerely,

David Cole

David Cole, Chief
State Land Use Planning Bureau
DCA/Division of Planning

DC/ke

DHES RESPONSE

It is the intent of the DHES that the retained Professional Engineer (P.E.) will individually approve design plans and directly supervise the installation of each sewage system. As for a guarantee, the P.E.'s signature means the person's professional license and reputation stands behind the work.

Concerning the operation of the sewage system, a properly installed system requires a minimal amount of effort to operate. If it malfunctions and the owner refuses to repair the system, he or she can be legally required to do so by local sanitarians or state or federal health officials.

cc = [illegible]

DEPARTMENT OF ANTHROPOLOGY

University of Montana
Missoula, Montana 59801
(406) 243-0211

RECEIVED
MAY 10 1977
MDHES
DIRECTOR'S OFFICE

May 9, 1977

A. C. Knight, Director
Dept. of Health, & Environmental Services
Board of Health Bldg.
Helena, Mt. 59601

Re: Environmental Impact Statement, Golden Glacier Parklands,
Glacier County, Montana

Dear Dr. Knight:

Thank you for the opportunity to comment on the EIS for the proposed development at Duck Lake.

We would like to enlarge a little on the statement (p. 22) about archaeological resources. Although we are not aware of known sites in the development area there are archaeological materials in the general area, e.g., site 24GL1004, a wickiup, in T35N, R14W.

We would strongly suggest that you consider archaeological reconnaissance in the project area prior to disturbances of land surfaces.

Yours very truly,

Dee C. Taylor

Dee C. Taylor
Professor, Anthropology

DCT:g
cc: SHPO

DHES RESPONSE

Although the DHES cannot require the corporation to hire an archaeologist to reconnoiter the area, it agrees with Dr. Taylor's suggestion to consider an archaeological reconnaissance in the project area prior to any construction.

University of Montana
Missoula, Montana 59801

May 13, 1977

Edward W. Casne, Chief
Subdivision Bureau
Department of Health and
   Environmental Sciences
Helena, MT   59601

Dear Mr. Casne:

After reviewing the environmental impact statement (EIS), I concur with your basic assessments and recommendations at this time. *

Sincerely,

Rodney L Brod
Rodney Brod, Ph.D.
Department of Sociology

* *Editor's Note: Dr. Brod's comments refer specifically to the social/cultural analysis.*

DHES RESPONSE

(Typed from a handwritten letter received May 20, 1977)

DHES RESPONSE

Norman Anderson
1408 - 5 Ave. So.
Great Falls, Montana

Dear Sir:

In regard to the subdivision of land on Duck Lake.

Duck Lake has to (sic) much subdivision on it all ready (sic). Why spoil all lakes and rivers with land developments. We have watched other states do it and now we are going the same way.

When I first started fishing on Duck Lake there was no cabins or buildings on the lake. What a wonderful place it was. It was black with ducks on the west end, and fishing was out of this world.

Then came the subdivision that is there now. The ducks left and so has the good fishing. That subdivision ruined the lake. What will a higer (sic) one do? A few geese would land on the east end in the fall. But they to would be gone with more building on the lake. The fresh water shrimp have allso (sic) gone way down in numbers from what they were.

Sewage would find its way in to (sic) the lake and being a lake like it is it would only be a short time before it became contammated (sic). Look what is going on in Flathead now with the sewage and how it is getting contammated (sic).

The Indians should have the right to zone the land on there (sic) reservation as citys (sic) and countyes (sic) do. After all it is there (sic) reservation.

Why let a place like Duck Lake go down the drain for a fast Buck.

/s/ Norman Anderson

Born on a Reservation.

FINAL RECOMMENDATION

Based on information in the draft EIS and from the public hearing, the DHES recommends conditional approval of the Golden Glacier Parklands subdivision.

STATE OF MONTANA
DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

* * *

In the matter of the proposed)
Golden Glacier Parklands)
subdivision in Glacier County,)
Montana)
)

TRANSCRIPT OF PROCEEDINGS

Public Meeting
May 17, 1977
Saint Mary, Montana

APPEARANCES:

MS. MONA JAMISON, Attorney
Montana Dept. of Health & Env. Sciences
Helena, Montana

MR. STAN BRADSHAW, Attorney
Montana Dept. of Health & Env. Sciences
Helena, Montana

MR. ED CASNE, Chief, Subdivision Bureau
Montana Dept. of Health & Env. Sciences
Helena, Montana

MR. RON MacDONALD, Attorney
Datsopoulos & MacDonald
Missoula, Montana

MR. PHILIP E. ROY, Attorney
Browning, Montana

MR. BOB GERVAIS, Tribal Councilman
Browning, Montana

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BE IT KNOWN THAT:

A public meeting held by the Montana Department of Health and Environmental Sciences was called to order at 8:00 p.m. on Tuesday, the 17th day of May, 1977 in the Saint Mary Visitors Center, Glacier National Park, Saint Mary, Montana, by Mona Jamison, staff attorney for the Department.

Proceedings of the meeting were reduced to writing, to-wit: shorthand, and were also recorded on a tape recording machine by Paulette Duncan, secretary to the Director of the Department. He follows a complete transcript of the proceedings and of the meeti and all comments adduced thereat:

TRANSCRIPT

MS. JAMISON: Good evening, everybody. I would like to thank the people at this time for plowing through the rain. My name is Mona Jamison, and I'm an attorney with the Montana Department of Health andEnvironmental Sciences. There are various Department personnel in the audience whose names -- they need not stand -- are present. We have -- Dr. Knight, Director of the Department of Health and Environmental Sciences, is present; Mr. Benjamin Wake, Administrator of the Environmental Sciences Division of the Department; Mr. Ed Casne, Bureau Chief of the Subd vision Bureau; Mr. Tom Ellerhoff, the individual who has written t Environmental Impact Statement; Mr. Stan Bradshaw, another Departm attorney. I'd like to take this opportunity to thank Mr. Harris a Superintendent Iverson for letting the Department use these facili in this magnificent park this evening. And I would also like to thank everyone in attendance and all the witnesses for attending.

STATE

This hearing is being held pursuant to the Montana Environmental Policy Act. Draft Environmental Impact Statements have been sent to various individuals, and this particular hearing is an information-gathering hearing for the benefit of the Department. We are here to solicit comments on this draft Environmental Impact Statement. These comments will be analyzed and seriously evaluated and will be considered in the Department's recommendation, which will be set forth in its final Environmental Impact Statement relating to the Golden Glacier Parklands proposed subdivision on Duck Lake.

The procedure will be the following: First, the proponents will testify; then the opponents; and then any neutral party or any person in attendance who would just like to make a statement for the record. What I have proposed originally doing is calling the first two names of each group in succession, but since we have a limited number of witnesses, I think we can go one at a time. If anyone is in the audience who would like to testify and has not signed the roster, at this time we respectfully request that you do so. The roster is at the entrance. And please indicate whether or not you are proponent or opponent.

The Department recognizes that Mr. Phil Roy is here and we thank him for attending, and that various development officials are here, too, and we thank them.

Mr. Ed Casne will now make a brief statement as to what has happened thus far in terms of the Department's review of the proposed development. Ed?

ED CASNE

MR. CASNE: Good evening. I thought before I would start, I should acknowledge the presence of one other Department official - one of my engineers from the Kalispell office, Wilbur Aikin,is als in attendance here tonight. I want to take just a moment to talk you about the history of our involvement with the Golden Glacier Parklands subdivision. The developers of this subdivision are Wes Travel and Recreation. The original proposal for this subdivision was presented to the Department as a very large subdivision. The developers proposed to subdivide their entire holdings on Duck Lake which involved over 2,000 acres.

In August of 1975, the developers revised their plans considerably and decided to develop only a small portion of their lakeshore property. That portion being 140 acres to be divided into 63 lakeshore lots. After receiving the proposal in 1975, the first step t the Department took was to prepare itself for the preparation of th Environmental Impact Statement. Now, that preparation involved inspection of the site, gathering the needed technical information conducting scientific studies on the lake water itself, and, the fourth item was reviewing the water supply, sewage disposal and sol waste disposal systems. The actual writing on the Environmental Impact Statement began late last summer. A rough draft of the impact statement was completed just a few months ago, in the early part of this year. That rough draft was circulated to Department officials, to the legal staff, and -- for their review and comment. After lengthy comment and review by the Department officials, the final draft was prepared and has been circulated to the public. That is the draft that many of you or all of you have seen and read We are now in the comment period of the Environmental Impact Statement. We will be receiving comments, both written and orally, here tonight, and we will incorporate these comments and study them, and based on these comments, we will review the information and make a final decision. After preparation -- after making this decision, we will prepare the final impact statement that will be circulated once again, this time without a comment period. That's it.

MS. JAMISON: Thank you. All right. We ask that, when you testify, you please come up to the podium. First proponent, Mr. Ron MacDonald. For the record, when you get to the podium, also state your name for the record. Thank you.

RON MacDONALD

MR. MacDONALD: Thank you. My name is Ron MacDonald. I'm an attorney with the law firm of Datsopoulos & MacDonald, of Missoula. I represent the corporation which is currently the owner of this property, Western Travel and Recreation, Incorporated. To members of the Department, Mr. Roy, and others, I simply would like to say on behalf of the developers that, in view of the status of the law dealing with the Department's participation in subdivisions and in view of the Beaver Creek South case, we find that your Environmental Impact Statement is quite commendable. We agree with your conclusions and we will do everything possible to attempt to meet the recommendation, at least in the preliminary draft, of conditional approval. With regard to the statement dealing with the lots -- and I believe the number's 60 -- 35 to 63, it is my understanding that the Department is recommending that that parcel of the land that has what's been claimed to be an access problem be sent back to the county and essentially the conditional approval be removed until legal access is secure. Without going into that question in any detail, I would simply request on behalf of the developers that, as originally requested, lots 35 through 63 be analyzed as to the questions before the Department of Health and that, if legal access is a problem, that your approval of the subdivision, if it's deemed appropriate, be conditioned on the developers providing to the Department's attorneys and to the county attorney in the area sufficient legal documentation to establish that legal access is present before the approval of the final plat.

On behalf of the developers, I'm as perplexed as apparently some of the members of the Department are as to the status of the Department's participation in subdivisions and the effect of the Montana Environmental Policy Act. I'm simply here to say that, to the extent that we have gone so far, with the exception of the timeliness problem, we concur with what's been done. Thank you.

MS. JAMISON: Thank you, Mr. MacDonald. Are there any other proponents in the audience whose names I do not have and who would like to make a statement? (SILENCE) Now for testimony by the opponents. Mr. Roy?

PHILIP E. ROY

MR. ROY: My name is Philip Roy and I'm in private practice in Browning and I represent the Blackfeet Tribe and I -- we have received the Environmental Impact Statement and I, for the record, am a little bit confused. There is a lot of question in my mind as to the time frames here, how long we have to comment and we, of course, are going to raise a lot of objections throughout the entir matter, but I would like to have the Department to notify me and keep me notified as to the time limitations that we have. I think

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the Bureau of Indian Affairs has asked for an extension of time already. But I am not going to say very much this evening, except that we do seriously question the jurisdiction of the State of Montana and the county as to subdivision review. I have just come back from Great Falls today where we have done a lot more study, I and other attorneys, on the whole aspect of Public Law 280 and what jurisdiction the states have on reservations for this type of review. This is especially important since we do have -- we are still finalizing, Mr. MacDonald, our own subdivision regulations and our own zoning aspects, and there's really a lot of grey areas here. We take a very adamant position that the county, of course, even though this is fee land, they have no jurisdiction to approve anything concerning the plat or the environmental aspects. And we say that you have not yet come to the Tribe for any kind of approval on this and we do intend to file litigation.

I don't know where that leaves us, but I think that you people are at a great loss with that land use law, and I think you are all going to learn something about reservations and State jurisdiction and county jurisdiction. We are doing this because we feel that it must be done, because the lake is in serious danger -- biological danger. We are not being foolish or just throwing a lot of timber out there when we say that the lake in that area does have special cultural and religious significance with this Tribe. And I don't know how far we can get with that argument, but the whole matter will be raised in view of -- I don't know when the litigation will be filed, probably within 30 days, but I want the Department to keep me advised on those aspects -- and when the time frames are, I'm still a little bit confused as to that.

MR. BRADSHAW: For the record, I'm Stan Bradshaw, and the time frame, in terms of comment period as to this particular draft are 30 days from the time that it was issued, and I believe it was issued on April 29. Thus, the end of comment period would be May 29, unless an extension is requested, in which case a 15-day extension can be granted, and I believe that the Bureau of Indian Affairs has requested that extension. So, that's the initial time frame.

MR. ROY: I just -- for the record, I don't really know at thi time what type of legal remedy we would seek. I suppose it would be injunction in nature. I think the county will be named, the St Department, the developers, and anybody else that is necessary dependent to the action, and I really don't know at this time just what remedy we are seeking or what the Department will do to react to that complaint when it is filed. These are a lot of unknowns. That's all I wanted to say. Mr. Gervais?

MS. JAMISON: Thank you, Mr. Roy. Next opponent, Mr. Bob Gervais?

BOB GERVAIS

MR. GERVAIS: Bob Gervais, Tribal Councilman, Chairman of the Lakeshore Committee for the Tribe, and all I have to say -- I woul like to had seen this meeting in Browning. Way out here -- well, don't have too many opponents anyway, but I would like to say this is one of our last ditch stands and we're going to battle all the way, and we have the right to close the lake, which we will do. We have a lot of help, a lot of lawyers who are very sympathetic to our cause, and it's going to be a good one, and as far as I'm

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concerned, we want to win. Thank you.

MS. JAMISON: Thank you. Are there any other opponents in the audience who would like to testify and who have not submitted their names? (SILENCE) Now, I have a list of persons in attendance, and I would like to know whether or not, as I read these names, these individuals would be interested in coming to the podium and testifying as neutrals. Mr. Lester Johnson?

MR. JOHNSON: No.

MS. JAMISON: Okay. Mr. Reid -- Miss Reid?

MRS. REID: Mrs. Reid. No, I have nothing. I'm here to learn..

MS. JAMISON: Bob and Ann Frauson? (NEGATIVE RESPONSE) Mr. Marquardt?

MR. MARQUARDT: No.

MR. BRADSHAW: Ashmore?

MR. ASHMORE: No, thanks.

MS. JAMISON: Okay. Mr. Reely?

MR. REELY: No.

MS. JAMISON: All right. If there are no other individuals in the audience who would like to testify, I would like to close by saying -- by requesting all individuals who have not received a draft Environmental Impact Statement who are in the audience and would like to receive one to please come up to any of the individuals at the podium, leave your name and address, and we will make sure that you receive one within a few days. I think that takes -- all right, just come up to the podium, we have available copies. Since there's no other testimony, meeting adjourned.

(MEETING CONCLUDED 8:20 P.M.)

# # #

Meeting proceedings were reduced to writing, to-wit: shorthand; and were also recorded on a tape recording machine. I, Paulette Duncan, do hereby certify that I was present in the Saint Mary Visitors Center, Glacier National Park, Saint Mary, Montana, on Tuesday, the 17th day of May, 1977 and recorded the proceedings reported herein on pages 1 through 10, inclusive, an that the foregoing transcript contains the true, accurate and correct transcript of the proceedings, including all matters discussed thereat.

Paulette Du
Secretary to the Director
Mont. Dept. of Health & Env. Sciences

June 15, 1977
Date

T OF WITNESSES

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).	OPP.	NAME	ADDRESS	TIME NEEDED TO TESTIFY
		Ron MacDull	217 Woodworth Ave.	.2 min —
	✓	Philip E. Roy [illegible]	Box 849 BROWNING	5 min
	✓	BOB GERVAIS	Box 119	"	1 MIN

PERSONS IN ATTENDANCE

PRO.	OPP.	NAME	ADDRESS	GROUP REPRESENTED, IF ANY
		Lester R Horn	#368 Browning	Self
		Joe Reigh	Box 6, BABB	
		Tom Jarvis	Babb, Mont.	
		Bob & Ann Franson	St. Mary Ranger Station	
✓		Ron MacDonald	217 Woodworth	Western Travel
✓		Dean Marquardt	1031 S. Main, Kal.	" "
✓		[illegible]	[illegible]	"
		Philip E Roy	Box 849	Browning, Mt
		BOB GERUAIS	Browning	Blackfeet Tri
✓		Bill Neely	Missoula	Western Travel & Rec

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